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The Lizards of the Torquatus Group of the Genus *Sceloporus* Wiegmann, 1828*

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Abstract: Complete synonymies, descriptions and a key are given for the recognized species and subspecies of the *torquatus* group, in which are included *serrifer, t. torquatus, t. melanogaster, bulleri, m. mucronatus, m. omiltemanus, cyanogenys, poinsettii, lineolateralis, j. jarrovii, j. minor, j. immucronatus, o. ornatus, o. caeruleus, d. dugesii* and *d. intermedius*. *S. ferrariperezi* Cope is synonymized with *S. t. torquatus* Wiegmann; *S. pleurolepis* Günther is synonymized with *S. d. dugesii* Bocourt. *S. guentheri* Stejneger is referred to the *spinosus* group. An analysis is presented of the phylogeny of the eleven proposed groups (*chrysostictus, scalaris, variabilis, utiformis, pyrocephalus, maculosus, microlepidotus, formosus, spinosus, undulatus* and *torquatus*) of the genus, and of the species and subspecies of the *torquatus* group. It is suggested that the genus *Uta* is derived from ancestral forms of *Sceloporus* whose most closely related living species are in the *variabilis* group.

INTRODUCTION

SCELOPORUS is one of the largest, most progressive and most recent of the new world lizard genera. Its extreme genetic activity has resulted in the appearance of numerous variations, many of which have not become fixed, partially because of an insufficiency of the time element, an inadequacy of their survival value, and unfavorable environmental conditions. A thorough re-

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*After this manuscript was in press, Mr. Joseph R. Bailey kindly pointed out to me that, unfortunately, the name *Sceloporus torquatus* Wiegmann is not tenable. In 1820 Wied described *Stellio torquatus*, which was placed by Wied in his new genus *Tropidurus* described in 1824 (Abbild. Nat. Bras.). In 1828 Wiegmann described *Sceloporus torquatus*, which the same author designated as the genotype of *Sceloporus* in 1834. In 1830 Wagler placed *Sceloporus torquatus* (also *S. spinosus* and *grammicus*) in the genus *Tropidurus*, together with *Tropidurus torquatus*. Thereby *Sceloporus torquatus* is suppressed as a homonym and cannot be resurrected.

The only names synonymous with *torquatus* are *melanogaster* Cope and *ferrariperezi* Cope, both described in 1885 in the same article. *S. melanogaster* is very definitely typical of the northern subspecies, while *ferrariperezi* is based upon intergrades between the northern and southern subspecies, definitely approaching the southern subspecies more closely than the northern. There seems to be no alternative for the selection of *ferrariperezi* as the name to replace *torquatus*. The specific and subspecific names of the races of the species previously known as *Sceloporus torquatus* Wiegmann should therefore be *Sceloporus ferrariperezi ferrariperezi* Cope and *Sceloporus ferrariperezi melanogaster* Cope.

As *Sceloporus poinsettii* Baird and Girard (1854) is the next oldest name in the group, I propose that the group previously known as the *torquatus* group be called the *poinsettii* group.

vision which describes and analyzes to a reasonable extent these extraordinarily numerous variations has long been one of the major desiderata in the study of American herpetology. Few American genera of lizards present to students of herpetology a greater array of taxonomic difficulties than this. The greatest difficulty encountered is the determination of the extent of fixation of the sundry variations; while a second difficulty is that of determining what degree of fixation is required that a variant population be given taxonomic recognition.

The several authors who have dealt with the genus have disagreed with each other in a surprising number of cases. They have expressed the result of their studies in one of two extremes—either the unwarranted recognition of individual or aberrant variations, or equally unwarranted synonymizing under one name of distinct species or subspecies which have in common certain obvious similarities but which also have dissimilar characters, overlooked or not well appreciated, which do define distinct and separate genetic entities.

This paper is presented as the first part of a proposed revision of the genus *Sceloporus*. It deals with one unit—the *torquatus* group. Of this group, about 1,300 specimens have been examined. Most of the Mexican material and many of the specimens from the United States are in the collections at the University of Kansas; and most of the specimens of this group in other museums of the United States have also been examined.

Studies of this nature must of a necessity be somewhat incomplete, because of the inadequacy of available material, the lack of more direct evidence of relationships, and the lack of absolute knowledge of the methods of speciation. Since such data are not available, in many cases the only recourse is to speculation, with a varying amount of probability of truth in each case. For these reasons many of the conclusions presented herewith must be considered tentative.

ACKNOWLEDGMENTS

It has been possible to complete the present work only through the invaluable courtesies of numerous individuals who have generously afforded aid. Among these I wish to express my indebtedness in particular to Dr. Edward H. Taylor, who has been of direct aid in many ways, and whose concepts of speciation and related phenomena have assisted in arriving at the conclusions here presented. I am indebted also to Dr. H. H. Lane, of the University of Kansas, for much invaluable advice and assistance in other respects; to Mr. C. D. Bunker, curator of Dyche Museum of Birds and Mammals, for permission to study specimens under his care; to Dr. K. P. Schmidt, for permission to examine specimens in the Field Museum; to Mrs. Helen T. Gaige, for permission to examine specimens in the Museum of Zoölogy of the University of Michigan; to Dr. Howard K. Gloyd, of the same institution, for the opportunity of making field studies under his direction; to Dr. Thomas Barbour and Mr. Arthur Loveridge, for permission to examine specimens in the Museum of Comparative Zoölogy; to Mr. David H. Dunkle, of Harvard University; to Dr. G. K. Noble, for permission to study specimens in the American Museum of Natural History; to Mr. C. F. Kauffeld, of the same institution, for numerous courtesies; to Drs. Leonhard Stejneger and Doris Cochran, for permission to examine specimens in the United States National Museum; to Dr. H. W. Fowler, for permission to examine specimens in the Philadelphia Academy of Natural Sciences; to Mr. L. M. Klauber, for permission to examine specimens in his personal collection, and for various data; to Señores Dr. Isaac Ochoterena and Rafael Martín del Campo, of the Instituto de Biologia in Mexico City, for numerous courtesies; and to Dr R. H. Painter, of Kansas State College at Manhattan, for numerous courtesies.

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EXPLORATION

A difficulty frequently encountered by specialists in attempting to loosen taxonomic knots is that of securing an acquaintance with their subjects in their natural state. It has been my good fortune to observe in the field most of the species dealt with herein. My first opportunity was during the summer of 1930, collecting in Texas, New Mexico and Arizona with Mr. Howard K. Gloyd and his wife. In the summer of 1931 I collected in Texas and New Mexico with Dr. and Mrs. R. H. Painter, of Kansas State College at Manhattan. The introduction to Mexican Scelopori was made possible by Dr. Edward H. Taylor, whom I accompanied during the summer of 1932 on an expedition covering seventeen central and northern Mexican states. In the summer of 1934 Mr. David H. Dunkle, now at Harvard University, and myself, ventured again into northern Mexico. A third trip, which covered most of the other states of Mexico, was undertaken during the summer of 1935.

METHOD OF MEASUREMENT AND DESCRIPTION OF DIAGNOSTIC CHARACTERS

For each specimen studied in detail, forty-seven characters of proportion and scalation were recorded. Certain measurements included in the tables presented herewith may be explained. The distance from snout to occiput is measured from the posterior edge of the interparietal to the end of the snout, in a plane parallel with the edge of the mouth. The snout to ear measurement is taken from the posterior border of the ear, in a line parallel to the median vertical axis of the head. The hind leg is measured along its posterior border, from the insertion of the leg to the tip of the fourth toe, excluding the claw. The fourth toe is measured from the base of the fifth, and does not include the claw. The tibia is measured along its anterior border, flexing the tibia back against the femur, holding the metatarsus at right angles to the tibia, and measuring from the inner angle of the tibiometatarsal joint to the proximal end of the tibia.

The scales of importance in descriptions of species of the *torquatus* group are as follows:

Interparietal (occipital). A large scale in the middle at the posterior edge of the head, always single, with a spot marking the position of the parietal foramen. The scale is usually more or less square, and its relative size is of some importance. At birth of the animal the interparietal is quite large, and gradually decreases in relative size as the animal attains greater age. In species which attain greatest size, the interparietal is relatively the smallest.

Parietals. A single, usually more or less triangular parietal borders the interparietal on either side. I do not consider the smaller, smooth scales occasionally present behind this scale as parietals.

Frontoparietals. Normally a single pair of small, rectangular frontoparietals precede the parietals, separating the interparietal from the row of scales about the supraoculars. The frontoparietals may contact each other medially, or may be separated either by an azygous scale or by contact of the frontal with the interparietal. In some species the frontoparietals are usually divided into four scales.

Frontal. This is a large scale between the orbits, normally transversely divided into two sections, the anterior being somewhat larger than the posterior. In *ornatus* the tendency is to lose the posterior portion of the frontal, probably by fusion with adjacent scales. In *poinsettii* the frontal is usually broken irregularly into several scales. It is significant that in species in which the supraoculars are in two rows, the frontal rarely or infrequently touches the interparietal. The reverse is the case in species having a single row of supraoculars.

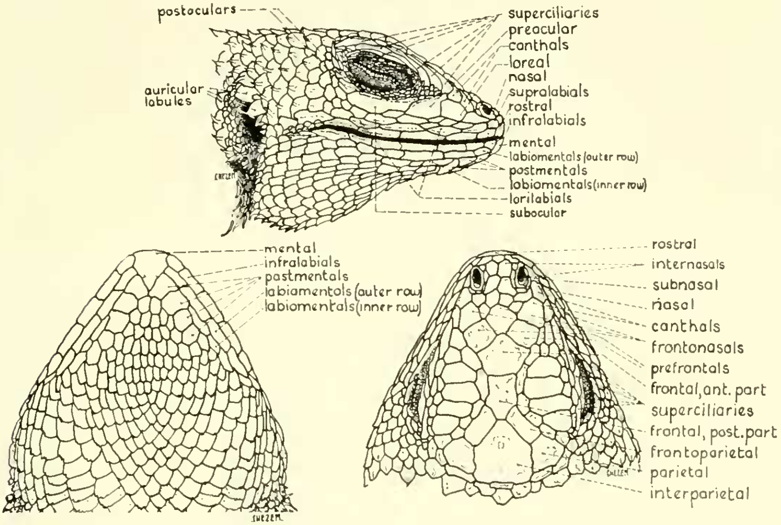

FIG. 1. Head scales of *Sceloporus torquatus melanogaster* (Cope), showing nomenclature adopted in this paper. DHD & HMS 453, near San Tiburcio, Zacatecas; actual head length, snout to occiput, 19 mm.

Prefrontals. Two rather large scales preceding the frontal. They may be in contact medially, or separated either by the contact of the median frontonasal with the frontal or by an azygous scale.

Frontonasals. Three large scales preceding the prefrontals the median of which is usually slightly the largest and may be in contact with the frontal.

Internasals. Apparently two pairs of internasals is the ideal condition, but this condition is seldom realized. The scales are usually very irregularly divided.

Nasals. Small scales in which the nares are pierced. They are never divided, and are always separated from the rostral. An irregular series of small scales surrounds the nasals except below, where a subnasal is present.

Supraoculars. A series of large scales above the orbit, in some species divided irregularly, or, in others, into two regular rows. They are always separated from the median head scales by a single row of small scales varying in size and general shape according to species (except in *serrifer*, in which species the last supraocular may not be separated completely from the median head scales). One, two or three complete or incomplete rows of small scales separate the supraoculars from the superciliaries, more or less according to species or subspecies.

Superciliaries. Six superciliaries are always present, the first four imbricating posteriorly, the fifth completely hidden below the fourth, and the sixth overlapping the posterior part of the fourth.

Canthals. Typically two, the posterior of which does not extend far onto the superciliary region. The anterior canthal is, in some species, frequently forced above the canthal ridge by contact of the second (posterior) canthal with the subnasal.

Subnasal. A relatively large scale immediately below the nasal, in contact with the anterior canthal and loreal.

Loreal. A small scale below the canthals, in contact anteriorly with the subnasal and posteriorly with the preocular. It may rarely be divided into two or three scales. The first canthal occasionally separates the loreal from the subnasal and contacts the rows of scales above the supralabials.

Preocular. A small scale, with a heavy keel near its upper posterior edge, segmented from the anterior end of the subocular. The preocular is, in some species, divided longitudinally.

Subocular. A large, curved, elongate scale immediately below the eye, with a heavy keel near its upper edge.

Postoculars. Variable, usually two. They follow the subocular, curving posteriorly and upward at the edge of the orbit, and are distinguished from the temporal scales by being heavily keeled and usually somewhat larger.

Lorilabials. The small scales above the supralabials are so called. On the sides of the head they are usually in two rows, sometimes reduced to one row at some point below the subocular. One of these rows invariably continues about the snout, passing immediately above the rostral.

Supralabials. A series of scales around the upper labial border, excluding the scale at the tip of the snout. The scales of this series are smooth and nonimbricating, and do not vary sufficiently to be of assistance in distinguishing species and subspecies.

Infralabials. A series of scales around the lower labial border, excluding the scale at the mandibular symphysis. The scales of this series are similar in character to the supralabials.

Mental. A median anterior pentagonal or triangular scale bordering the lip.

Postmentals. A series of enlarged scales on each side posterior to the mental. The scales are paired; those of the anterior pair are always in contact medially, and those of the following pairs are separated from each other by a varying number of scales. The number of postmentals is irregular and of little taxonomic significance.

Labiomentals. Two series of scales on each side between the postmentals and infralabials. In some species the anterior scale of the outer row may usually contact the mental, and this condition is of some taxonomic significance. When the anterior scale of the outer row is separated from the mental, it is only by narrow contact of the first infralabial with the first postmental.

The inner row of labiomentals never extends as far forward as the outer row, and the position at which it terminates, in relation to the infralabials, is of considerable taxonomic significance.

Auricular lobules. These are the scales on the anterior border of the ear. Their number and relative size are of importance.

Lateral nuchal fold. A dermal pocket between the arm and the ear. The lining of this pocket is without scales or only with small, granular scales.

Postfemoral dermal pocket. A dermal pocket at the posterior margin of the insertion of the hind leg. The lining is without scales of any kind. It is not present in any species of the *torquatus* group.

Enlarged postanals. Two smooth, enlarged scales immediately posterior to the anus in males. They are normally present in all members of this group, but in *jarrovii* and its subspecies they are occasionally lacking or very poorly developed.

Femoral pores. A longitudinal series of pores along the posteroventral border of the thighs. The number of pores in each series is of much importance. They are always present in *Sceloporus,* and in the *torquatus* group are never less than nine, and the series never approach each other closely on the median ventral line.

In a number of species of the *torquatus* group, the scales in the preanal region are modified in such a manner that they appear pore-like. They are not regularly so modified in any species of this group, and never occur in most species.

General character of scales. The dorsal scales of the body in species of the *torquatus* group are typically keeled, and with a terminal mucrone. In a number of species the median dorsal scales may lack terminal mucrones. The lateral scales are usually somewhat larger than the dorsal scales, and more strongly keeled and mucronate. Spines or denticulations, when present, are more numerous on the lateral scales than on the median dorsal scales. The dorsal caudal scales are usually somewhat larger than the median dorsal scales on the body. In *ornatus* the scales on the body have terminal pits.

The ventral scales are always smooth, and in most species are notched. The dorsal head scales are always pitted to some extent.

The dorsal scales of *dugesii* are remarkable in the fact that the terminal mucrone arises distinctly within the free margin of the scale. This is most evident on the lateral scales of the body, the dorsal scales of the thigh and the temporal scales. Related species show a tendency toward mucronation of this type. The extreme development is in *dugesii dugesii.*

The dorsal scale rows are usually parallel, occasionally convergent and rarely divergent. All three conditions may occur rarely in one species. No species has divergent scale rows except as an aberrant variation, while some species normally have convergent scale rows, with occasional variants possessing parallel scale rows.

Lamellar formulae. The number of lamellae under the free parts of the fingers and toes is of some importance in *Sceloporus.* The range of variation in the *torquatus* group is slight and of little significance. The lamellae are always tricarinate as in many other genera of Iguanidae.

Nuchal collar. The most important characteristic for definition of members of the *torquatus* group is the presence of a black, light-bordered collar about the neck, which may or may not be complete ventrally (only complete in males), according to species and age of the individual. The light borders may be incomplete (most incomplete in a certain phase of *jarrovii jarrovii*), but never absent. No species not belonging to the *torquatus* group has such a collar. However, certain species of related groups (*microlepidotus, formosus* and *spinosus*) may have black collars about the neck. These collars differ in lacking the light borders, and the species have other differential scale characters.

Ventral coloration. Females are light-colored below, and markings are confined, when present, to the gular region. Adult males always have some type of ventral coloration. Usually the gular area is bluish, as well as the sides of the abdomen. The blue areas on the sides of the abdomen may be black-bordered. In some species the entire ventral surface is blue.

Size. Maximum size is considered to be of as great importance as many of the scale characters. The range in maximum size, in the *torquatus* group, is from 75 mm. snout to vent (*ornatus caeruleus*) to 143 mm. (*cyanogenys*). *S. ornatus ornatus* and *S. dugesii intermedius* are approximately as small as *ornatus caeruleus,* while *torquatus melanogaster* approaches closely the size of *cyanogenys.*

In the tables of measurements and scale counts, when no museum is given for a certain specimen number, the Mexican collection at Kansas University is referred to.

HISTORICAL DISCUSSION

A number of revisions of *Sceloporus* have appeared since the description of the genus by Wiegmann in 1828. Six species were originally described in the genus—*torquatus, spinosus, grammicus, pleurostictus, aeneus,* and *scalaris,* of which *torquatus* is the generic type. In 1834 Wiegmann published his "Herpetologia Mexicana," in which he recognized nine species—*torquatus, formosus, spinosus, horridus, grammicus, microlepidotus, variabilis, aeneus* and *scalaris.* Duméril and Bibron, in 1837 (Erpétologie generale), recognized ten species, adding *undulatus* Latreille.

The next important work is that of Bocourt in the Mission Scientifique, in 1874. This author recognized twenty-two species. only two of which are of the *torquatus* group (*torquatus* and *dugesii.*). He also recognized *poinsettii* as a variety of *torquatus. S. ornatus,* described in 1859 by Baird, and *serrifer,* described by Cope in 1866, are mentioned without description.

In 1885 Cope published a synopsis of *Sceloporus,* in which he recognized thirty-six species and subspecies, eleven of which belong to the *torquatus* group. At that time only one other species of the group had been described which Cope did not recognize—*intermedius* Dugès (1877).

In the same year, the catalogue of the lizards in the British Museum, by Boulenger, appeared, and in this thirty-three species and subspecies were recognized, nine of which are of the *torquatus* group.

In 1890 Günther published a synopsis of *Sceloporus* in Biologia Centrali-Americana, recognizing thirty species. Seven other described forms are listed without comment as to validity.

In 1897 Boulenger presented his conclusions with regard to the species of *Sceloporus* in his revision of the genus. He recognized thirty-six species and subspecies, seven of which belong to the *torquatus* group.

The last monograph of the genus is that of Cope, published in 1900, in "The Crocodilians, Lizards and Snakes of North America." In this are recognized forty species and subspecies, eleven of which belong to the *torquatus* group.

In this work, which deals with the *torquatus* group, I recognize as valid sixteen species and subspecies. These include only ten of the twelve recognized by Cope (1900), together with two previously described.*

GROUPS IN THE GENUS

It appears that the genus is divisible into eleven fairly definite groups, which I name as follows: *torquatus, formosus, microlepidotus, variabilis, scalaris, siniferus, spinosus, utiformis, undulatus, pyrocephalus* and *maculosus*. Of these eleven groups, the *torquatus, spinosus* and *undulatus* groups are the largest. The species of the *spinosus* group are well differentiated and bespeak an age greater than that of the *undulatus* and *torquatus* groups. In these two groups subspecies are numerous and their separation is comparatively difficult.

PHYLOGENY OF THE GENUS *SCELOPORUS*

Sceloporus is one of the most nearly ideal of living genera of reptiles for the study of speciation and related phenomena. The characteristics which it possesses and which are essential to an ideal genus for such studies are:

1. *A large number of living forms.* One hundred and seven species and subspecies have been described. Approximately eighty-two of these are valid.

2. *Prolificity.* Where *Sceloporus* occurs, usually it is the most common of all reptiles, or for that matter, of all vertebrates.

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* It appears that *Sceloporus guentheri* Stejneger (1918) does not belong to the *torquatus* group, but probably to the *spinosus* group.

3. *A large range, entirely contiguous.* The genus occupies practically all of the United States, and occurs as far south as Panamá.

4. *Great adaptability.* Species in this genus have adapted themselves to a considerable range of elevation—from below sea level (Death Valley) to about 13,500 feet above sea level. They occur in almost every conceivable terrestrial habitat—deserts, sand dunes, forests, on rocks, trees, or ground, in grassy plains or heavy brush, and even on houses, fences and other man-made structures.

5. *Lack of obvious distinctive specific characters.* Subspecies are numerous and species not so well defined as in many other genera of animals, and for this reason relationships may more definitely be postulated.

These characters are indicative of a group of relatively recent development.

It seems likely that *Uta* has been derived from *Sceloporus*. *Uta* is undoubtedly more closely related to *Sceloporus* than any other living genus. I assume this to be true because of the remarkably close agreement of certain members of the *variabilis* group of *Sceloporus* with certain members of the *ornata* group of *Uta*. I present the following data in support of this view.

A postfemoral dermal pocket is known to be regularly present in *Uta ornata* and its subspecies, *U. caerulea, U. levis, U. stansburiana hesperis,* and *U. taylori,* and is variable in certain other species and subspecies.

In certain species of *Sceloporus* of the *variabilis* group, a vestigial gular fold is present immediately in front of the arm which is homologous with the gular fold present in *Uta*. In *Sceloporus* it is most distinct in *S. couchii* and *S. merriami*. In the former species, there is present also a postfemoral dermal pocket immediately behind the insertion of the hind leg. The dorsal scales are extremely small for the genus, the laterals are minute and the size of the species itself is small.

In *Uta levis* (as well as in the related *U. ornata*), the gular fold is remarkably poorly developed. It is frequently interrupted medially, the scales of the gular region passing directly into the ventrals; in many cases in which the fold is not thus completely interrupted, small scales replace medially the tiny lateral granules. In *U. levis* the lateral scales are uniform in size and very minute—practically granular—but visibly imbricated. The enlarged dorsals are in some specimens in several rows, gradually decreasing in size laterally and grading into the lateral scales. Also, the dermal pocket is present behind the insertion of the hind leg, as in *S. couchii.* Its size is comparable with that of the latter.

It is not a far cry from the smaller, almost granular lateral scales of *Uta levis* to the larger, but yet minute, laterals of *S. couchii;* nor is it impossible to conceive of an increase in size of the lateral dorsals from a few rows of enlarged scales to several or many. The vestigial gular fold of *S. couchii* is comparable with the partially developed fold of *Uta levis.* A postfemoral dermal pocket is present in each, and the sizes of the species are comparable.

It may be stated that the nearest point of contact between the two genera, so far as it may be traced in living forms, is between the species *levis* of *Uta* and *couchii* of *Sceloporus.* It cannot be said that either gave rise to the other; it is more likely that the two diverged from an ancestral type not greatly different from the above two species. By this view the *variabilis* group (to which *couchii* belongs) is the most primitive of the genus, while the *torquatus* group is probably the most highly specialized.

It appears that the *Sceloporus* stock, early in its evolution, separated into two divisions; from one came the large-scaled forms, mostly of large size, and from the other came the small-scaled forms, all of small size. From the latter division developed, among others, the *variabilis* group.

The extensive range of *Uta,* although smaller than that of *Sceloporus,* and the relatively considerable amount of speciation, would indicate that *Uta* is of considerable age. It would follow that the *variabilis* group of *Sceloporus* and the *ornata* group of *Uta* are relatively ancient, yet of much more recent development than the ancestral stock which gave rise to the other groups of *Sceloporus.* I assume that the *ornata* group is primitive to other groups of *Uta;* but it appears that the *variabilis* group is a specialized, divergent group which has given rise, not to other species and groups of *Sceloporus,* but to the quite distinctive genus *Uta.*

The groups of the small-scaled division of *Sceloporus* are, for the most part, difficult to allocate in a phylogenetic scheme, due to their rather vague relationships. The following discussion may support the tentative arrangement as here adopted.

Of the small-scaled forms, the *chrysostictus* group first became stabilized. The *variabilis* group is undoubtedly closely related to the *chrysostictus* group. *S. cochranae* (of the *chrysostictus* group) very closely resembles *variabilis variabilis,* differing most markedly in the absence of a postfemoral dermal pocket. The *pyrocephalus* group possesses a species (*gadoviae*) which shows relationship with *variabilis* by the possession of a postfemoral dermal pocket, and is associated with the *variabilis* stem. The *utiformis* group also shows direct relationship with the *variabilis* stem through *S. merriami,* which possesses a prominent vestigial gular fold. Both members of the *utiformis* group (*utiformis* and *merriami*) possess granular lateral scales.

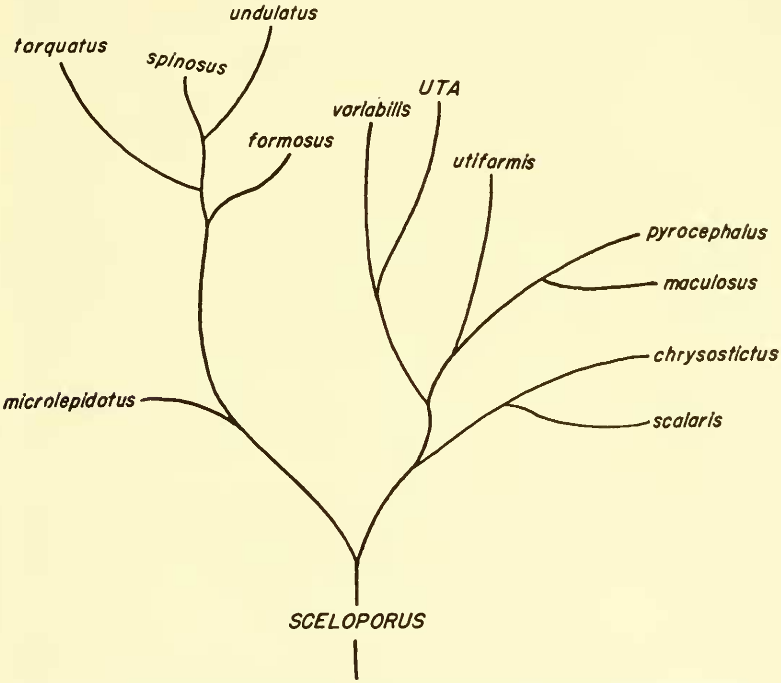

FIG. 2. Diagram illustrating the proposed phylogeny of the groups of *Sceloporus.* Generic names are in caps, group names in lower case.

The *scalaris* group has its closest relatives in the *chrysostictus* group, through *jalapae* of the former group and *ochoterenae* of the latter group.

The *maculosus* group, containing the single species *maculosus,* has no very close relatives, and is difficult to place in a phylogenetic tree. I assume, however, that its closest relationship is with the *pyrocephalus* group, through *S. nelsoni* of the latter group. *S. maculosus* certainly has no close relationship to the *variabilis* group, lacking all specialized characters of the latter group; from the *sca-*

laris group it differs widely in possessing oblique rows of lateral scales and smooth head scales; from the *chrysostictus* group it differs in lacking keeled preanal scales in females, and rugose head scales. The *utiformis* group is widely different from *maculosus* in the character of the lateral scales and the presence of a vestigial gular fold.

The remaining five groups (*microlepidotus, formosus, spinosus, undulatus* and *torquatus*) apparently have no close relationship with the other groups, and apparently diverged from a common stock which early separated from the other. The *microlepidotus* group is assumed to be the most primitive of these, largely because of its very small scales. The habitus of the species of this group and the fact that the species are ovoviviparous associate them definitely with the *torquatus* and *formosus* groups. Certain species of the *microlepidotus* group have large scales and closely resemble forms of the *formosus* group.

The *formosus* group appears to be near the common ancestral stock of both the *spinosus* and *torquatus* groups, through *acanthinus* of the former group and *serrifer* of the latter group. It may be added that these two species are also the most closely related of the *spinosus* and *torquatus* groups, respectively.

The *undulatus* group undoubtedly is most closely related to the *spinosus* group, through *undulatus* of the former group and *floridanus* of the latter.

Two apparent discrepancies appear in the arrangement of the last five groups discussed. First, all are of relatively large size except the *undulatus* group; and second, three groups are ovoviviparous (*microlepidotus, torquatus* and *formosus*) and the other two are oviparous.

The relatively small size of the species of the *undulatus* group must be assumed as a parallel development rather than a direct inheritance of the small size of the ancestor in the *varibilis* group, for the close relationship of the *spinosus* and *undulatus* groups cannot logically be disputed, nor is the close relationship of the *spinosus, torquatus* and *formosus* groups doubtful. It is possible, or even likely, that certain primitive species of the *spinosus* group, such as *acanthinus,* may be ovoviviparous, and that this character has been dropped in the further evolution of the group. It is well known that both ovoviviparity and oviparity occur in closely related species of *Phrynosoma.*

DISCUSSION OF THE TORQUATUS GROUP

Habits and habitat. As a rule, species of this group are confined to rocky habitats. So far as I am aware, only *cyanogenys* tends to live on or near the ground. *S. jarrovii* occasionally, and *serrifer* perhaps usually, are found on trees. Individuals of most species are extremely wary and difficult of acquisition. In central Mexico a number of species are found on rock fences in great abundance.

Mating probably takes place in early spring, inasmuch as the young are born in May or early June. Several species of this group are known to be ovoviviparous, and the remainder are presumed to be so.

Species included. The following species have been described:

S. bulleri Boulenger (1894, pp. 729-730, pl. 48, fig. 3).
S. ornatus caeruleus Smith.
S. torquatus cyanogenys Cope (1885, p. 402).
S. dugesii Bocourt (1874, pp. 188-190, pl. 18, figs. 7, 7a, 7b).
S. ferrariperezi Cope (1885, p. 400).
S. jarrovii immucronatus Smith.
S. intermedius Dugès (1877, pp. 29-34, pl. 1, figs. 21-32).
S. jarrovii Cope (1875, pp. 569-571, pl. 23, figs. 2-2d).
S. lineolateralis Smith.
S. melanogaster Cope (1885, pp. 400-401).
S. torquatus minor Cope (1885, p. 402).
S. torquatus mucronatus Cope (1885, p. 402).
S. omiltemanus Günther (1890, p. 66, pl. 32, fig. A).
S. ornatus Baird (1859, p. 254).
S. poinsettii Baird and Girard (1854, pp. 126-127).
S. torquatus Wiegmann (1828, p. 369).
S. pleurolepis Günther (1890, pp. 74-75, pl. 32, fig. B).
S. serrifer Cope (1866, pp. 124-125).

It is proposed herein that the following names should be recognized:

S. bulleri Boulenger.
S. cyanogenys (Cope).
S. dugesii dugesii Bocourt.
S. dugesii intermedius (Dugès).
S. jarrovii jarrovii Cope.
S. jarrovii minor (Cope).
S. jarrovii immucronatus Smith.
S. lineolateralis Smith.
S. mucronatus mucronatus (Cope).
S. mucronatus omiltemanus (Günther).
S. ornatus ornatus Baird.
S. ornatus caeruleus Smith.
S. poinsettii Baird and Girard.
S. serrifer Cope.
S. torquatus torquatus Wiegmann.
S. torquatus melanogaster (Cope).

I regard it necessary to synonymize Cope's *ferrariperezi* with *t. torquatus* Wiegmann, and Günther's *pleurolepis* with *d. dugesii* Bocourt.

It appears that soon after the separation of the *torquatus* stock from the other groups of *Sceloporus*, there was a separation into two divisions, one of which exhibited a tendency to develop small scales, the other large scales. This small-scaled division is now composed of species of smaller size, while the large-scaled division is composed of species of larger size. In the latter, the maximum size of its smallest species is greater than the maximum size of the largest species of the small-scaled division. Each division contains certain species having one row of supraoculars and others having two rows. This character of the supraoculars I would consider to be of less importance in distinguishing major divisions than maximum size of species or size of scales on the body, because of the greater variability and more erratic appearance of this character in species not closely related.

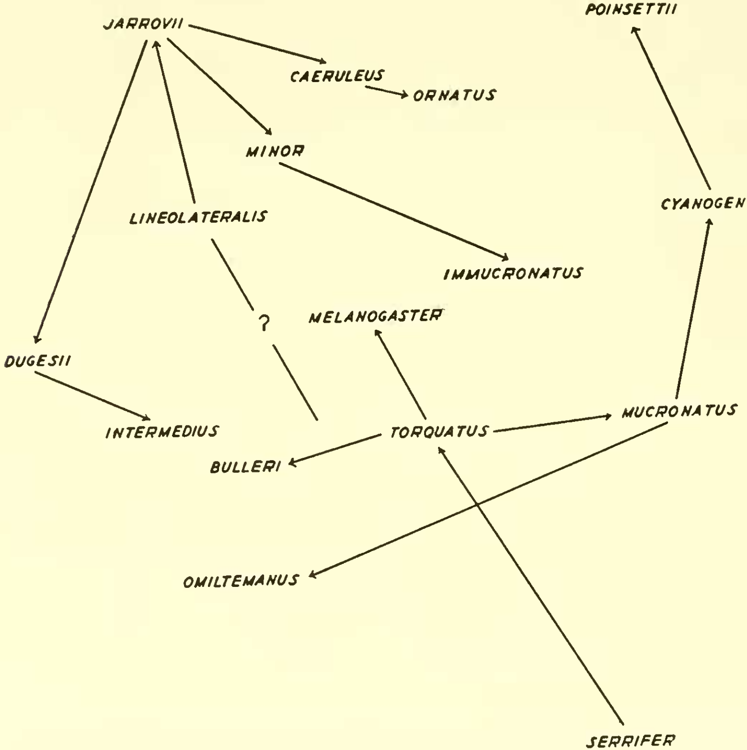

FIG. 3. Diagram illustrating the geographical relationships and derivations of species and subspecies of the *torquatus* group. Overlapping of ranges is not indicated.

S. serrifer appears to be the oldest of the large-scaled species. The postulation that this species, which is one of the larger ones of the genus, and one having large scales, is nearest to the ancestral type of the large-scaled division of the *torquatus* group may appear to be contradictory to the postulation that *Sceloporus* is derived from small species with small scales. However, my assumption seems to be justified by the fact that *serrifer* occupies a southern position on the periphery of the geographical area now occupied by the *torquatus* group; and by the fact that it shows its closest relationship with the more primitive forms in the same area of the *spinosus* and *formosus* groups, which are obviously older, as indicated by the clearer definition of the species associated with them, and the fact that their present geographical distribution is peripheral to the gen-

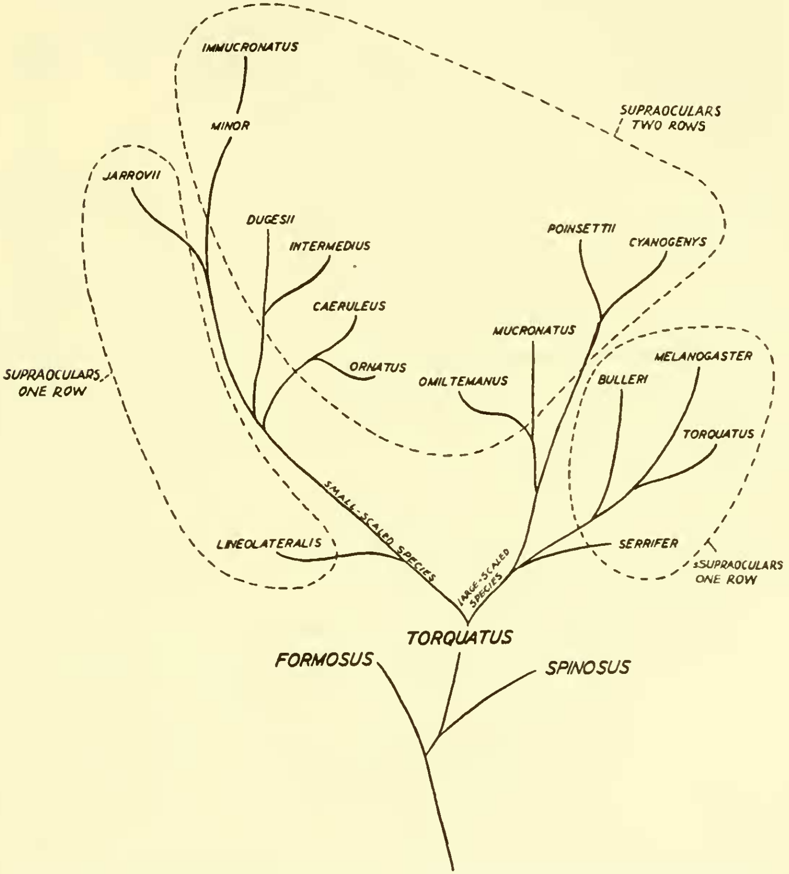

FIG. 4. Diagram illustrating the proposed phylogeny of species and subspecies of the *torquatus* group. Group names are given in larger letters.

eral area now occupied by the genus. The *formosus* group has, moreover, a discontinuous distribution also indicative of greater age.

Of the other species of the large-scaled division of the *torquatus* group, *cyanogenys, poinsettii* and *omiltemanus* have scales smaller than the remainder, and are for this reason considered to have diverged early from the restricted *torquatus* stem. *S. mucronatus* appears to be the nearest to the ancestral type of these three species, despite the fact that it has larger scales than they. I so conclude because of its centralized geographical position with relation to the area occupied by the other three forms.

Of the small scaled species, it appears that *lineolateralis* is the oldest living species. I am led to this belief because of the fact that this species occupies a relatively isolated area between the area occupied by most members of the small-scaled division and that occupied by most members of the large-scaled division. Further, it combines certain features of scalation more characteristic of species in the large-scaled division with other features more characteristic of species in the small-scaled division. *S. jarrovii* appears to be most closely related to *lineolateralis*. From this species, or its ancestors, the remaining species of the small-scaled division have obviously been derived.

KEY TO SPECIES

A. Supraoculars in a single series, with no scale divided.

B. Femoral pores, 8 to 14; dorsal scales, 28 to 35........*S. serrifer* Cope, page 558

BB. Femoral pores, more than 14; or, dorsal scales, more than 35.

C. Dorsal scales, 31 or less.

D. Nuchal collar divided on each side of neck, the area between lighter in color; dorsal color light, with dark and light spots irregularly placed; size large (maximum snout to vent measurement, 129 mm.); dorsal scales more strongly keeled and mucronate.
S. torquatus melanogaster (Cope), page 571

DD. Nuchal collar broad, complete; dorsal color dark, without light spots; maximum snout-vent measurement, 98 mm.; dorsal scales more weakly keeled and mucronate.
S. torquatus torquatus Wiegmann, page 564

CC. Dorsal scales, more than 31.

D. Lateral scales about half as large as median dorsals.
S. lineolateralis Smith, page 617

DD. Lateral scales as large as or larger than dorsals.

E. Dorsal scales, 40 or more; nuchal collar narrow, with light borders broken; a light line on side of head and another on side of neck; each dorsal scale usually with a light medial spot........................*S. jarrovii jarrovii* Cope, page 624

EE. Dorsal scales usually less than 40; nuchal collar broad, with unbroken light borders; no light lines on sides of head and neck; no spots on dorsal scales....*S. bulleri* Boulenger, page 579

AA. Supraoculars in two series; or, if in one series, with one or more scales divided.

B. Lateral scales with the terminal mucrone arising well within the free posterior margin; dorsal scales 41 or more.

C. Dorsal scales, 47 to 54; throat with very distinct, oblique, dark-blue lines; head scales not rugose (microscopically); oblique dark bands on sides of body distinct; maximum snout-vent measurement, 79 mm.
S. dugesii intermedius (Dugès), page 663

CC. Dorsal scales, 41 to 50; throat without or with very dim oblique lines; head scales rugose (microscopically); oblique dark bands on sides of body indistinct or absent; maximum snout-vent measurement, 87.5 mm.; femoral pores, not over 13............*S. dugesii dugesii* Bocourt, page 657

BB. Lateral scales with the terminal mucrone arising at or very near the free posterior margin; head scales not rugose (microscopically); no oblique, dark-blue lines on throat.

C. Dorsal scales, 55 or more..............*S. ornatus ornatus* Baird, page 647

CC. Dorsal scales, less than 55.

D. Dorsal scales, 47 to 53..........*S. ornatus caeruleus* Smith, page 652

DD. Dorsal scales, less than 47.

E. Black nuchal collar six to eight scales broad; supraoculars usually in two complete rows; irregular dark markings frequently present on throat; dorsals, 34 to 46; series of dorsal scales never with longitudinal light and dark lines; maximum snout-vent measurement, 101 mm.
S. jarrovii minor (Cope), page 631

EE. Black nuchal collar less than six scales broad.

F. Nuchal collar two or three scales broad; general ground color blue, at least in males; males with the entire belly black and blue; dorsal scales, 37 to 46; maximum snout-vent measurement, 87 mm.
S. jarrovii immucronatus Smith, page 640

FF. Nuchal collar more than two or three scales broad; maximum snout-vent measurement no less than 100 mm.

G. Tail with very distinct, broad, alternating dark and light bands, most distinct toward tip of tail, where they are complete; supraoculars in two complete rows; head scales very irregular; light borders of nuchal collar broad; a broad light band across neck behind occiput; preocular usually entire; inner row of labiomental scales usually terminating at a point posterior to suture between second and third infralabials.
S. poinsettii Baird and Girard, page 606

GG. Tail without distinct alternating dark and light bands of nearly equal width; bands about tail not complete toward tip; dorsal scales, 40 or less.

H. Dorsal scales, 31 or less; two parallel dark lines down middle of throat (except in adult males); a broad median dark band usually visible, composed of about five large dim blotches.
S. mucronatus mucronatus (Cope), page 583

HH. Dorsal scales, more than 31; or, if less, without parallel lines down middle of throat; without a median dark band.

I. Light borders of nuchal collar usually unbroken medially; upper auricular lobule much enlarged; each dorsal scale row usually with a longitudinal light line; general dorsal coloration dark; maximum snout-vent measurement, 114 mm........*S. mucronatus omiltemanus* (Günther), page 591

II. Light borders of nuchal collar usually broken medially; auricular lobules not well differentiated; no lines on dorsal scale rows; general dorsal coloration very light, usually of a shade of blue; maximum snout-vent measurement, 143 mm........*S. cyanogenys* (Cope), page 599

Sceloporus serrifer Cope

(Text figs. 5 and 6; plate XLVII, fig. 2)

Sceloporus serrifer Cope, 1866, pp. 124-125; *idem*, 1885, p. 401; Boulenger, 1885, p. 221; Cope, 1887, p. 37; Günther, 1890, pp. XIII, 77; Boulenger, 1897, p. 488; Cope, 1900, p. 336; Barbour and Cole, 1906, p. 150; Stejneger, 1918, pp. 91-92.

Sceleporus serrifer Werner, 1896, pp. 346, 352; *idem*, 1903, p. 344.

Sceloporus torquatus serrifer Stuart, 1934, p. 11; *idem*, 1935, p. 45.

Type locality. Yucatán. Type USNM 24868; apparently seven paratypes, USNM 10298, 24869-74; all collected by Arthur Schott.

Diagnosis. A member of the *torquatus* group; dorsal scales, 28 to 35 from occiput to base of tail; femoral pores, eight to fourteen; supraoculars in a single row, entire, the last occasionally in partial contact with median head scales; tibia about equal to length of shielded part of head; length of fourth toe usually greater than snout-ear measurement; general dorsal coloration light; nuchal collar complete, light bordered; parietals, interparietal and posterior part of frontal each with a conspicuous light spot; several light spots or bands on neck; each dorsal scale with a black median streak along the keel in females; throat bluish, reticulated or spotted with white or cream; middle of belly and usually the chest cream or white in males.

Description (from E.H.T & H.M.S. 2212, male). Head and body not flattened; head scales pitted (especially in prefrontal and internasal regions), not keeled, slightly convex; parietals single on each side, subtriangular, about one fourth size of interparietal; latter hexagonal; frontoparietal single on each side, subrectangular, two thirds the size of either parietal, separated medially by a small azygous scale; posterior section of frontal about one fourth size of anterior section; prefrontals in contact medially, their common suture about one fourth their maximum length; prefrontals narrowly separated from second canthals, slightly less than one half size of anterior section of frontal; median frontonasal shield-shaped, slightly larger than either lateral frontonasal; two small, broad, short scales in front of median frontonasal; these preceded by a median pair of rather large, long internasals, separated from rostral by a row of small scales; nasal small, the naris pierced nearly in the middle, leaving a narrow border, somewhat wider and tapering anteriorly; subnasal small; first canthal larger than second, not forced above canthal ridge, not in contact with lorilabials, somewhat U-shaped (probably fused with loreal); supraoculars 4-4, separated from median head scales by a single row of small scales, from superciliaries by a single row of very small scales; preocular divided; subocular followed posteriorly by two short, strongly keeled, well-differentiated postoculars; two rows of labiomentals, not reduced below subocular; three and one half or four and one half supralabials and five infralabials to a point below middle of eye.

Mental pentagonal, its labial border slightly more than half that of rostral; mental followed by three or four pairs of postmentals, the scales of the anterior pair in contact with each other; outer row of labiomentals separated from mental by a narrow contact of first postmental and first infralabial; inner row of labiomentals terminating anteriorly even with the anterior part of third infralabial; gular scales smooth, smallest anteriorly, largest laterally near angle of jaws, with as many as three apical notches; notches more numerous on posterior gular scales, absent on anterior gular scales.

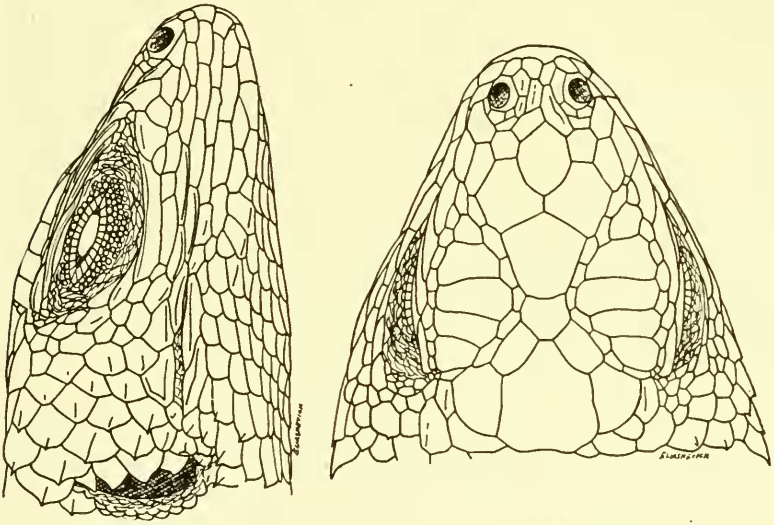

FIG. 5. Head scales of *Sceloporus serrifer* Cope. UMMZ 71771, near Mérida, Yucatán; actual head length, snout to occiput, 15.7 mm.

Ear with four auricular lobules, smooth, rounded or pointed, not well differentiated, smaller than preceding scales; scales between ear and lateral nuchal fold subequal in size to those in temporal region, but more strongly keeled and mucronate; a fold of skin between nuchal pocket and a point below lower edge of ear, surmounted by very strongly mucronate scales; dorsal scales weakly keeled, strongly mucronate, with numerous lateral denticulations; lateral scales equal to or somewhat smaller than dorsal scales, more strongly keeled, mucronate and denticulate; ventral abdominal scales smooth, slightly more than one half the size of median dorsals, each with a single apical notch; median gular scales about two thirds size of median abdominals, subequal in size to preanals; subcaudals smooth except toward tip of tail; postanals enlarged, separated by two small scales; dorsal caudals toward base of tail somewhat larger than median dorsals on body.

Dorsal scales of foreleg keeled, mucronate, denticulate, those on upper foreleg about two thirds size of median dorsals on body and about one third larger than dorsal scales on lower foreleg; ventral scales of foreleg smooth, slightly mucronate, those on lower foreleg somewhat smaller than dorsal scales of same member, much larger than ventral scales of upper foreleg; lamellar formula for fingers, 10-15-18-19-15 (10-15-20-20-15).

Dorsal scales of hind leg keeled, strongly mucronate, very weakly denticulate, those on thigh two thirds the size of median dorsals on back, those on shank slightly smaller than dorsals on body; ventral scales on shank smooth, rounded, slightly smaller than dorsals of same member; ventral scales of thigh smooth, notched, those immediately preceding femoral pores subequal in size to preanal scales; scales on posterior surface of thigh strongly keeled, strongly mucronate, denticulate, nearly twice as large as preanal scales, abruptly decreasing in size near femoral pores; no postfemoral dermal pocket; lamellar formula for toes, 9-15-19-24-17 (9-15-19-23-17).

Color. Black nuchal collar broad, about four scales wide in median dorsal line, continued across throat in males; collar bordered on either side by a light band about one scale wide, the posterior of which is complete and passes onto the foreleg near its insertion; the anterior light border broken medially, terminating laterally at the upper edge of the lateral nuchal fold; keels on dorsal scales black, producing the effect of a narrow dark line down the middle of each scale row; a transverse series of light spots across neck between ears; a light spot in the center of the interparietal and each parietal; a narrow light band across the middle of the orbits (may be represented by only a light spot on the posterior section of the frontal); a light band across the prefrontals (very dimly visible in males); tail dimly banded with light brown and olive.

Males uniform olive or brownish olive on back and limbs; throat stippled heavily with blue and black, increasing in intensity toward gular fold region, which is black; ventral surfaces of limbs, chest and a narrow median abdominal band white; sides of belly caerulean blue, tinged with purple; a rather broad black band (about three scales wide) bordering lateral blue areas, involving groin, rarely reaching to black of gular region.

Females brownish olive on back and limbs, with scattered irregular dark-brown spots; ventral surfaces uniform whitish.

Variation. The variation in head scales of fifty-three specimens is as follows: Parietal one third to one fifth size of interparietal; frontoparietals divided on one side in one; frontal touches interparietal in twenty-three; frontoparietals contact medially in twenty-one; an azygous scale separates frontoparietals medially in nine; entire frontal longitudinally divided in three specimens; anterior section of frontal divided longitudinally in two specimens; frontal divided transversely in two places in one specimen; frontal entire in six specimens; prefrontals contact medially in forty-two; median frontonasal contacts frontal in six; an azygous scale separates them in five; the supraoculars are entire in all, usually four on each side, sometimes five; usually but a single row of scales separates the supraoculars from the superciliaries; in a few specimens one or two extra scales of small size are present; the last supraocular is in contact with the median scales on one side in nine specimens, on both sides in two; canthals regularly 2-2; first canthal forced above the canthal ridge in one specimen, in contact with lorilabials in six; preocular divided on one side in three specimens, on both sides in thirty-five; lorilabials reduced to one row below subocular on one side in nine specimens, on both sides in twelve; the outer row of labiomentals contacts the mental in four specimens; the inner row terminates at some point between the anterior part of the third infralabial and the anterior part of the second infralabial; auricular lobules three to five, relatively small.

The dorsal scales from occiput to base of tail vary between 28 and 35. The scales average somewhat larger in the specimens from Yucatán. The specimens from La Primavera, Guatemala, have a larger average number of scales. These specimens differ also from the others examined in possessing a larger average number of femoral pores, an azygous scale regularly present between the frontoparietals, an azygous scale much more frequently present between the prefrontals than usual, and the inner row of labiomentals terminating farther forward (even with the anterior part of the second infralabial) than usual.

The femoral pores in the entire series vary from eight to fourteen; specimens from Yucatán have the lowest average number, while the specimens from La Primavera, Guatemala, have the highest average number.

A peculiar male specimen in the National Museum (No. 46861), from Chiapas, Mexico, collected by Nelson and Goldman, is referred to this species. It is quite possible that it represents an undescribed species; however, since certain head scales are obviously abnormal, it seems unwise to consider the specimen as representative of a new species. Its characters are as follows: snout to vent, 77 mm.; tail, 112 mm.; snout to occiput, 15.9 mm.; snout to ear, 19.9 mm.; breadth of head, 11.8 mm.; hind leg, 55.5 mm.; tibia, 15.5 mm.; fourth toe, 21.7 mm.; fifth toe, 12 mm.; lamellae fourth toe, 21-22; femoral pores, 13-14; dorsals, 31; ventrals, 47; scales around body, 36. Frontoparietals not divided; parietal one fourth size of interparietal; frontal touches interparietal; frontal not divided; supraoculars 4-4, three divided on each side; one row of small scales between supraoculars and superciliaries; supraoculars separated from median head scales; frontal contacts median frontonasal; latter separated on each side from lateral frontonasals by a small scale; canthals 2-2, normal; preocular divided; two rows of lorilabials, complete below subocular; outer row of labiomentals separated from mental; inner row of labiomentals terminating anteriorly even with posterior part of second infralabial.

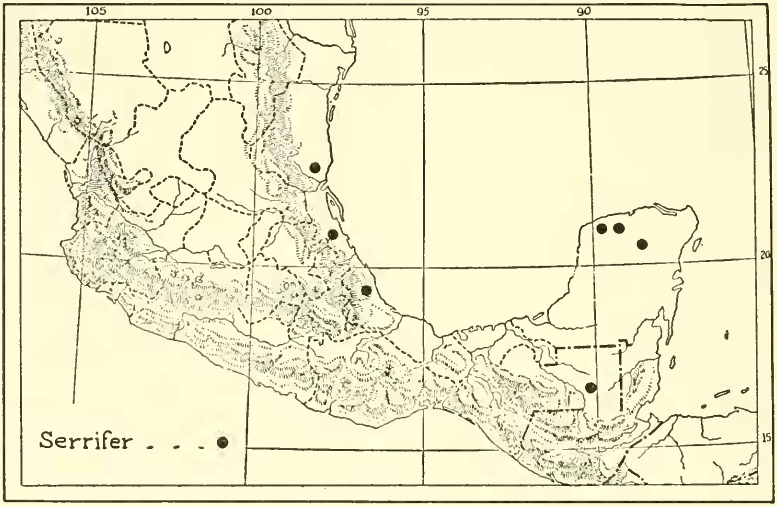

FIG. 6. Distribution of *Sceloporus serrifer* Cope.

No distinct light marks on head, except pineal spot; ventral coloration exactly as in typical *serrifer*.

Habits and habitat. Stuart (1935, p. 45) records the following notes on specimens collected at Zotz, Petén, Guatemala: "Many were seen climbing about the rafters and thatched roofs of several

Measurements and Scale Counts of *Sceloporus serrifer* Cope

Museum	MCZ	UMMZ	MCZ	MCZ	MCZ	MCZ	EHT HMS	MCZ	MCZ	MCZ	MCZ	MCZ	MCZ	MCZ	EHT HMS	EHT HMS	MCZ	USNM
Number	28159	74956	28156	28158	6269	17493	2210	6269	6269	6269	6269	28157	6269	6269	2012	2211	6269	24868
Snout to vent	81.0	82.0	82.5	82.5	83.5	89.0	89.5	90.0	91.0	91.0	92.5	93.0	98.0	101.0	101.0	109.5	112.0	102.0
Tail	......	......	......	......	100.0	......	135.0	123.0	......	......	......	......	......	......	......	......	......	......
Snout to occiput	15.3	15.8	16.2	16.0	15.5	16.6	16.7	16.5	16.8	16.2	16.0	18.0	17.4	17.7	18.0	20.0	19.2	18.2
Snout to ear	18.5	19.5	19.9	20.0	19.2	20.6	21.0	21.0	21.8	20.8	20.2	21.2	21.7	21.6	23.0	25.5	25.0	22.5
Hind leg	......	58.5	57.5	60.0	52.0	56.0	......	56.3	58.8	55.0	56.0	60.8	57.6	58.0	67.0	69.0	68.0	65.0
Tibia	14.0	15.1	16.0	17.0	15.0	15.5	17.0	16.0	17.0	15.8	16.0	17.0	16.0	17.5	19.0	19.5	19.9	19.0
Fourth toe	21.8	23.8	22.7	23.4	20.9	21.6	24.0	21.6	22.3	20.0	21.7	22.7	21.4	22.3	25.2	27.0	24.8	22.9
Fifth toe	12.4	13.7	13.0	12.8	11.9	13.0	14.7	12.8	12.9	11.9	11.9	13.2	12.2	12.0	14.6	15.0	15.2	13.0
Lamellae, fourth toe	20–20	20–20	20–21	20–20	19–?	16–17	22–24	17–18	18–19	19–19	19–19	20–21	18–18	20–21	23–24	20–20	20–20	20–20
Femoral pores	11–12	11–11	12–13	13–14	9–10	11–11	12–13	10–10	10–11	9–9	11–11	12–13	9–10	10–10	11–12	13–14	10–10	9–10
Dorsals	34	32	35	33	28	32	32	30	29	29	29	32	30	30	31	32	31	28
Ventrals	45	42	46	44	39	48	......	43	39	41	41	43	41	40	......	......	41	43
Scales around body	33	33	32	34	33	33	35	34	32	33	31	34	35	33	34	34	32	29
Scales to head length	6.0	6.1	6.7	6.0	4.6	5.5	5.3	6.4	6.2	5.3	4.6	5.2	5.0	4.7	5.0	5.8	5.3	......
Ratio hind leg to snout-vent	......	71.3	69.7	72.7	62.2	62.9	......	62.5	64.6	60.4	60.5	65.3	58.7	57.4	66.3	63.0	60.7	63.7
Ratio fourth toe to snout-vent	26.9	29.0	27.5	28.3	25.0	24.0	26.7	24.0	24.5	21.9	23.4	24.4	21.8	22.0	25.0	24.6	22.1	22.4
Sex	♀	♀	♂	♂	♀	♂	♀	♂	♂	♀	♀	♀	♀	♀	♂	♂	♂	♀

deserted houses in the small clearing. One of the adults was taken, ten feet from the ground, on the trunk of a large tree, and another which was frightened readily ascended a tree to the height of about forty feet. In actions the form appears much like *Sceloporus magister* of the southwestern United States; as an adult it is probably largely arboreal." This arboreal tendency is of considerable interest. So far as I am aware, no other species of the *torquatus* group shows the same tendency.

Distribution. Along the eastern coastal plains of Mexico and Guatemala south from southern Tamaulipas.

Locality records. Tamaulipas: Chocoy (M. C. Z. 17943, W. W. Brown). *Vera Cruz:* Papantla (U. S. N. M. 47353, E. A. Goldman); four miles east of Encero (E. H. T. & H. M. S. 2210-2). *Yucatán:* (Type locality) (Cope, 1866, 1885, 1887; U. S. N. M. 10298, 24868-74); Chichen-Itzá (Barbour and Cole, 1906); near Mérida (UMMZ 72881-90, Edwin Creaser; UMMZ 71771 [6 specimens]; MCZ 6269 [16]); Tekanto (ANSP 8500). *Guatemala:* Zotz, Petén (Stuart, 1935; UMMZ 74956 [12 specimens], L. C. Stuart); La Primavera (MCZ 28153-9, A. W. Anthony, 2500 ft.).

Remarks. The records of Werner (1896) of *serrifer* from Guatemala and Honduras may be doubted. His record from Guatemala was later (Werner, 1903) corrected.

Sceloporus torquatus torquatus Wiegmann

(Text Figs. 7 and 8; Plate XLVIII, Fig. 1)

(The following synonymy omits only those references to *torquatus* which are quite certainly wholly applicable to other species. The subspecies *torquatus melanogaster* has been included in much of the material concerning which the following papers have been written, but the uselessness of any attempt to allocate any of these with the synonymy of *melanogaster,* without examination of the specimens, is obvious.)

Sceloporus torquatus Wiegmann, 1828, p. 369; *idem,* 1834, p. 49, pl. 7, fig. 1; Fitzinger, 1843, p. 75; Müller, 1865, p. 601; Sumichrast, 1873, p. 243; Bocourt, 1874, pp. 171-173, pl. 18, figs. 9, 9a, 9b, 9c (part ?); ? Cope, 1875, p. 48; *idem,* 1879, p. 265; Sumichrast, 1882, p. 37 (part ?); Boulenger, 1885, p. 219; Cope, 1885, pp. 401-403 (part); *idem,* 1887, p. 37; Dugès, 1887, pp. 113-114; Garman, 1887, p. 14; Herrera, 1889, p. 331; Günther, 1890, pp. XII, 66; Boettger, 1893, p. 64; Herrera, 1895, p. 18; Dugès, 1896, p. 479; Boulenger, 1897, pp. 477-481, text fig. 1 (part); Mocquard, 1899, p. 156; ? Cope, 1900, pp. 336, 340, 347-350, text fig. 50; Herrera, 1904, p. 18; Gadow, 1905, pp. 194, 214 (part ?).

Tropidurus torquatus Wagler, 1830, p. 146.

Agama torquata Peale and Green, 1830, pp. 231-232; Garman, 1884, p. 17.

Tropidolepis torquatus Gray, 1831, p. 43; Duméril and Bibron, Vol. IV, 1837, pp. 301-303; Gray, 1839, p. 95; *idem,* 1845, p. 208; Aug. Duméril, 1851, p. 77; Dugès, 1870, p. 243.

Sceloporus ferrariperezi Cope, 1885, p. 400 (part); *idem*, 1887, p. 37; Günther, 1890, pp. XIII, 77; Cope, 1900, p. 335.

Sceloporus torquatus torquatus ? Cope, 1885, pp. 402, 403; *idem*, 1887, p. 37; Mertens, 1930, p. 158.

Sceloporus torquatus ferrariperezi Boulenger, 1885, pp. 220-221.

Type locality. Mexico.

Description. Head scales smooth; supraoculars in a single row, rarely (about five percent of the specimens) with the outer third or fourth of two or three separated off; two to three incomplete rows of scales separating the supraoculars from the superciliaries; one row of elongate to squarish scales between supraoculars, the first supraocular rarely touching narrowly the median head scales (2 percent); frontal normally contacting interparietal (91 percent); canthals normally two (96 percent), the first frequently (about 60 percent) above the canthus, the second canthal and subnasal contacting; median frontonasal usually (66 percent) contacting the frontal, or separated from it by a small median scale between the two prefrontals; the lateral series of scales intercalated between the series of postmentals and the infralabials frequently (about 45 percent) touching the mental anteriorly; lobules on anterior margin of ear usually larger than those preceding, usually three in number, the upper two largest; median dorsal scales 26 to 30 from occiput to base of tail, in parallel series, smooth or weakly keeled, rounded or weakly mucronate; lateral dorsals somewhat larger than median dorsals, more strongly keeled and mucronate; femoral pores, 14-23 (average 18) on each side, the two series closely approximated medially; tibia approximately equal to length of shielded part of head; length of fourth toe usually a little less than distance from snout to posterior margin of ear, rarely slightly more.

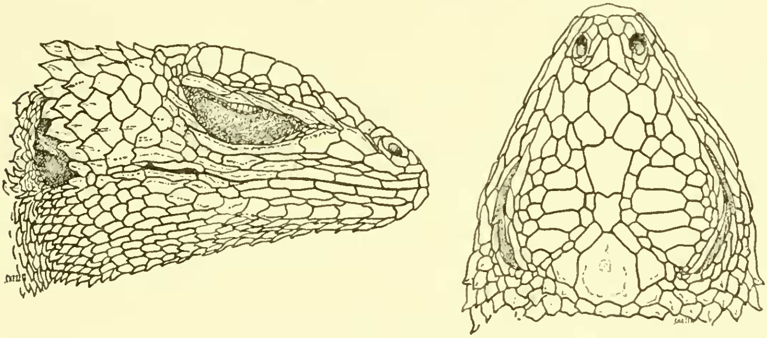

Fig. 7. Head scales of *Sceloporus torquatus torquatus* Wiegmann. EHT & HMS 3569, near Tres Cumbres (Tres Marias), Morelos; actual head length, snout to occiput, 16.3 mm.

Black nuchal collar always present, four or five scales long on the middorsal line; light borders of black collar one scale wide; posterior light border frequently narrowly interrupted medially, extending laterally onto the proximal end of the humerus; anterior light border usually interrupted medially, extending laterally a variable distance, sometimes to the posterior border of the ear, passing along the crest of the lateral nuchal fold, sometimes terminating at a point dorsal and anterior to the insertion of the foreleg; the anterior light border is sometimes horseshoe shaped, and extends anteriorly on each side to a point above the ear, becoming quite dim anteriorly; light borders variable in color, sometimes cream, sometimes blue or green, occasionally strongly tinged with orange; a few irregular light spots frequently present on neck; upper labial region occasionally dimly barred; back uniform olive gray, drab, olive, or blue-gray, varying according to the time elapsed since the last ecdysis; spots on back present only in some very young specimens, and when present, large and indistinct; anteroventral surface of femur usually coarsely reticulated; dorsal surface of limbs rarely banded, light bands dim and narrow when present, bluish in color; posterior surface of femur usually traversed by a light band, usually rather dim; tail with numerous, narrow, indistinct light bands, bluish or cream in color.

Ventral gular and chin region irregularly spotted or reticulated, all light areas disappearing and replaced by black or blue in adult males; no longitudinal pair of dark lines near the midventral line on the throat ever present. In some adult males, the entire ventral surface of head, body, and tail is black, with the exception of cream-colored areas on the tail and femur. In other large males the throat is pale, iridescent blue, becoming azure blue toward the neck; the neck is black, and this color is continuous with a broad, median ventral black band, occupying the chest, a wide area in the middle of the abdomen, and the groin. Usually some pale blue or cream-colored areas are visible in the middle of the abdomen. The sides of the belly are azure blue, with a generous tinge of companula blue.

In females, the belly may become drab-gray, usually darker toward the sides, and the throat usually remains gray-blue with numerous white flecks or reticulations.

Variation. The entire series is very uniform in scalation and proportions. The more important variations are given in the diagnosis. In addition, the preocular is separated from the series of scales above the supralabials in about thirty-seven percent of the specimens; the anterior frontal is divided in about ten percent. In one specimen the frontal is not divided. Other obvious fusions of head scales rarely occur.

The coloration is very constant, within limits of variation given in the diagnosis.

Remarks. Bocourt (1874, pl. 18, fig. 9) shows the details of the dorsal head scales of Wiegmann's type of *torquatus*. The supraocular scales are exactly as in the specimens studied, in a single row, with one complete and another incomplete row of scales between them and the superciliaries. The frontal contacts the interparietal, and there is an azygous scale between the two prefrontals.

Sceloporus torquatus has been recorded from the states of Chiapas (Sumichrast, 1882), Chihuahua (Baird, 1859), Coahuila (Garman, 1887), Colima (Bocourt, 1874; Gadow, 1905), Durango (Boulenger, 1897), Guanajuato (Dugès, 1870, 1896; Boulenger, 1897), Guerrero (Boulenger, 1897; Gadow, 1905), Jalisco (Günther, 1890; Dugès, 1896; Boulenger, 1897; Mocquard, 1899), México (Peale and Green, 1830; Dugès, 1887, 1896; Herrera, 1889; Günther, 1890; Boulenger, 1897; Gadow, 1905; Mertens, 1930), Nuevo León (Yarrow, 1883; Cope, 1885), Oaxaca (Bocourt, 1874; Sumichrast, 1882), Sonora (Yarrow, 1883), Tamaulipas (Baird, 1859), Vera Cruz (Sumichrast, 1882; Cope, 1885, 1887, 1900; Boulenger, 1897) and Zacatecas (Dugès, 1896). Cope (1888) records *torquatus* from San Diego, Texas.

It is quite certain that some of these records are incorrect. Those from Chihuahua, Coahuila, Durango, Nuevo León, Sonora and Tamaulipas are almost certainly of other species. Those from Chiapas, Oaxaca and Zacatecas are doubtful, as are also some of those from Colima, Guanajuato, Guerrero, Jalisco and Vera Cruz. Cope's record from San Diego is obviously in error, probably referable to *poinsettii*.

Boulenger's (1897) records are obviously composites, as he lumped nearly all the apparently related forms, recognizing only *poinsettii*, and part of these specimens are of other forms. In his table A (single row of enlarged supraoculars) those specimens from Guadalajara, Guanajuato and Rio Santiago have characters of *torquatus melanogaster;* the one from El Paso, collected by Forrer, probably has incorrect locality data (Forrer's specimens are notable for incorrect locality data); and the remainder appear to be the only *torquatus torquatus* he had (seven specimens). In table B, the *poinsettii* from Duvall county, Texas, is peculiar in having such a small number of scales from occiput to base of tail; the locality may be incorrect. The specimen in table B from Mexico is possibly *mucronatus mucronatus.* In table C, presumably consisting entirely of *poinsettii,* only those from Duvall county, Texas, seem to have characters of *poinsettii;* the others are very likely of other species, probably *m. mucronatus* and *m. omiltemanus.*

Habits and habitat. S. torquatus torquatus seems to be confined to areas of high elevation. Specimens I have seen or collected have been within the zone of evergreens.

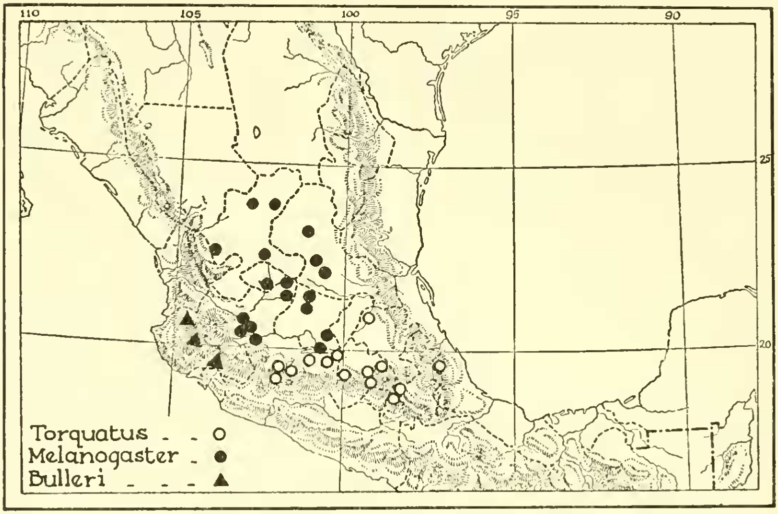

FIG. 8. Distribution of *Sceloporus torquatus torquatus* Wiegmann, *S. t. melanogaster* (Cope) and *S. bulleri* Boulenger.

In the American Museum of Natural History are eight specimens (Nos. 15540-7) which were "born in bag before May 18, 1919." The female (or females) which gave birth to the young were collected two miles west of Tacuba, D. F., by Paul D. R. R. Rüthling, on May 16, 1919.

Range. Central Mexico, including Hidalgo, western central Vera Cruz, Mexico, Distrito Federal, northern Puebla, eastern Morelos, southern Guanajuato and northern Michoacán.

Locality records. Hidalgo: Twenty-five miles south of Jacala (EHT & HMS 601-604); *México:* Two miles south of San Martín (EHT & HMS 3842); Valle de México, 7,700 ft. (MCZ 33902, W. W. Brown); Tlalpam (USNM 47769, E. W. Nelson); San Juan Teotihuacán (MCZ 16063—6, E. R. Dunn; UMMZ 63937, H. B.

Measurements and Scale Counts of *Sceloporus torquatus torquatus* Wiegmann

Number	629	3563	617	3773	3562	2784	602	3781	3383	601	3578	3772
Snout to vent	74.3	77.5	79.0	80.0	82.0	83.0	83.5	86.0	87.0	87.0	87.5	88.0
Tail	101.5	....	105.0	....	116.0	....	131.0	119.0	115.0	133.0	....	115.0
Snout to occiput	13.7	15.5	15.6	15.5	16.3	16.5	15.5	17.5	16.0	16.0	15.6	17.0
Snout to ear	17.0	18.0	18.0	19.0	20.5	19.0	18.0	20.0	20.0	21.0	18.0	20.7
Hind leg	47.6	47.0	48.0	48.0	52.0	52.3	54.0	47.6	54.0	57.0	....	51.0
Tibia	13.5	13.3	13.7	19.7	15.0	15.0	15.0	15.0	15.0	15.5	14.5	16.0
Fourth toe	18.5	18.2	17.9	18.0	20.5	18.9	20.7	16.5	21.0	22.2	19.0	18.1
Fifth toe	9.9	10.0	10.2	10.0	10.5	10.3	11.0	10.5	11.5	12.1	10.1	10.5
Lamellae, fourth toe	20–20	19–20	19–19	18–20	20–20	20–20	19–19	17–20	20–19	19–19	20–19	19–19
Femoral pores	17–17	19–19	19–20	18–18	18–19	16–17	15–15	17–17	17–17	16–16	19–20	14–14
Dorsals	29	30	30	28	27	28	28	27	30	29	28	28
Ventrals	....	....	....	50	....	51	....	57	55	....	....	44
Scales around body	35	39	40	41	41	38	33	37	38	35	36	34
Scales to head length	5.0	5.5	5.5	5.0	5.0	5.6	5.0	5.8	5.0	5.0	4.5	4.6
Ratio, hind leg to snout-vent	62.7	60.6	60.7	60.0	63.4	63.0	64.6	55.3	62.0	65.5	....	57.9
Ratio, fourth toe to snout-vent	24.8	23.4	22.6	22.5	25.0	22.7	24.7	19.1	24.1	25.5	21.7	20.5
Sex	♀	♀	♂	♀	♂	♀	♀	♀	♀	♂	♀	♀

Measurements and Scale Counts of *Sceloporus torquatus torquatus* Wiegmann—Concluded

Number	3568	3573	3768	616	3766	3777	3775	3557	3571	3785	3842
Snout to vent	91.5	91.5	92.5	92.5	96.0	97.0	97.5	97.5	99.5	101.0	102.5
Tail	....	....	....	119.0	....	138.0	127.0	....	122.0	140.0	....
Snout to occiput	16.8	16.5	18.0	17.0	17.5	19.0	19.0	17.5	18.0	19.0	17.5
Snout to ear	21.0	21.0	21.8	20.3	22.0	24.0	23.0	22.0	23.2	24.0	23.0
Hind leg	57.0	55.0	60.2	60.5	58.5	61.5	63.0	....	58.5	61.0	59.0
Tibia	17.0	16.0	17.8	16.0	17.0	18.0	18.0	17.5	17.0	19.0	17.0
Fourth toe	20.2	20.2	21.5	22.2	21.0	20.8	21.9	19.8	20.8	22.0	20.7
Fifth toe	10.2	10.4	12.0	13.0	11.7	12.1	12.3	11.0	11.0	11.7	10.5
Lamellae, fourth toe	19–20	19–19	20–21	23–23	20–19	20–21	17–17	19–19	19–20	19–18	20–20
Femoral pores	20–20	17–18	18–19	18–20	17–18	20–20	18–?	18–19	18–18	19–19	18–20
Dorsals	28	28	28	29	27	29	28	29	28	30	28
Ventrals	....	....	57	....	53	53	50	....	49	55	53
Scales around body	39	35	40	41	38	41	38	43	38	42	39
Scales to head length	5.0	5.0	5.5	5.0	4.8	5.5	5.0	4.7	5.0	5.6	5.0
Ratio, hind leg to snout-vent	62.2	60.1	65.0	64.8	60.9	63.4	64.6	....	58.7	60.4	57.5
Ratio, fourth toe to snout-vent	22.0	22.0	23.2	24.0	21.8	21.5	22.4	20.3	20.9	21.7	20.1
Sex	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂

Baker); *Distrito Federal:* (AMNH 15490, Rüthling); Coyoacán (MCZ 9551, 9597); Pedregal de San Angel (MCZ 16090, E. R. Dunn); two miles west of Tacuba (AMNH 15540-7, Paul D. R. Rüthling); three miles west of Tacuba (AMNH 15582, Rüthling); San Juanico (AMNH 15552-4, 15592-3, 15592-7, 15603, 15605, 15608-9, 15612, Rüthling); North of Guadelupe (AMNH 15604-5, 15607, 15610, 15611, 15613, Rüthling); east of San Mateo Chalpa (AMNH 15590, Rüthling); Mexico City (USNM 12719, A. Herrera); west of Atzcoalco (AMNH 18473, Rüthling); *Michoacán:* near Uruapan (EHT & HMS 3384-90, 3765-97); near Zinapécuaro (EHT & HMS 3657, 3667, 3672-3); near Lake Cuitzeo (EHT & HMS 3723); Queréndaro (USNM 47162, 47233, E. W. Nelson); three miles north of Maravatio (EHT & HMS 3733-39); Pátzcuaro (FMNH 996 [4 spec.], 1399, S. E. Meek; USNM 20159, 20139-44, P. L. Jouy; USNM 47222, E. W. Nelson; ANSP 15358, S. N. Rhoads); Tupátaro (USNM 10238, 10244, 10232, 10235, 10252, Dugès); *Morelos:* near K63, on highway between Mexico City and Cuernavaca (EHT & HMS 1715, 1747, 1753); five kilometers south of Tres Cumbres (Tres Marias) (EHT & HMS 1689, 1691, 1693-5); near Tres Cumbres (EHT & HMS 616-624, 627-629, 3557, 3559-3581, 5115-5118). *Puebla:* near Rio Frio (EHT & HMS 3349); Atlixco (USNM 47034, E. W. Nelson). *Vera Cruz:* near Toxtlacuaya, about eighteen miles west of Jalapa (EHT & HMS 1860). *Indefinite localities:* Mexico (USNM 12095; ANSP 8499 [type of *torquatus* Peale and Green]; AMNH 15601-2); no data (AMNH 15600).

Sceloporus torquatus melanogaster (Cope)

(Text Figs. 1 and 8; Plate XLVIII, Fig. 2)

Sceloporus melanogaster Cope, 1885, pp. 400-401; *idem*, 1887, p. 37; Dugès, 1887, pp. 114-115, pl. 12, fig. 7; Herrera, 1889, p. 332; Günther, 1890, pp. xiii, 77; Herrera, 1895, p. 18; Cope, 1900, p. 335; Herrera, 1904, p. 18.

Sceloporus torquatus melanogaster Boulenger, 1885, p. 220; Boettger, 1893, p. 64.

Type locality. Cope (1885) says that the type was "probably from Guanajuato." Dugès (1887, p. 114) states: "Este escelóporo no es de Guanajuato, como lo piensa el autor, porque yo fuí el que se lo remitió sin indicación de localidad; todos los que he visto venían de México y la Noria (Michoacán), ó de Tupátaro, cerca de Cuerámaro." Type USNM 9877, Dugès collector.

Discussion. S. t. melanogaster shows no important scale differences from *torquatus torquatus.* It is notable that the dorsal scales of the latter form average very slightly smaller, are frequently almost smooth and rounded, and never more than weakly mucronate.

The supraoculars are smaller, being bounded laterally by never less than two, and sometimes three, incomplete rows of scales, and bounded medially by a row of scales more or less square in shape. In *torquatus melanogaster,* on the other hand, the dorsal scales average slightly larger and are more strongly keeled and mucronate than in *t. torquatus.* The supraoculars are larger, occasionally separated from the superciliaries by only one row of scales. The series of scales bounding the supraoculars medially are usually more elongate than in *t. torquatus.* However, so much variation occurs in these characters that they are useless for diagnosis; they are, however, of interest in general tendencies of variation, supplementing the other more diagnostic features.

In maximum size attained, *torquatus melanogaster* approaches more closely to *cyanogenys* than to any other form of the *torquatus* group; it reaches 129 mm. snout to vent, while *t. torquatus* reaches only 98 mm.

Many very striking differences in coloration are apparent. The name is quite misleading, as the belly is not as black in males of *t. melanogaster* as in *t. torquatus.* The color variation is as follows:

The black nuchal collar is not over two or three scales wide; the light borders are cream-colored, with sometimes a tinge of blue. The posterior light border is not over one scale wide, and may be quite indistinct in some specimens; it is not reduced, however, by breaking into spots, but by general decrease in distinctness. The anterior light border is quite variable, and does not extend laterally beyond a point approximately even with a line drawn posteriorly from the superciliaries. At this point it is usually continuous with a light band about one scale wide which passes anteriorly to the upper edge of the ear. This band, although sometimes quite irregular, is quite characteristic. At the point where this light band connects with the black nuchal collar, the latter is narrowed considerably and frequently completely broken. The area between these two narrow places in the black collar may be of the same color as the back, the collar confined to the shoulder region. A few light flecks usually occur in the neck region. A dark band, usually visible, passes from the upper margin of the eye to the upper margin of the ear, and is bordered below by a light band which passes underneath the eye.

The back is drab, drab-gray or glaucous-blue. A series of dim dark spots are usually present on the back, either scattered irregularly or arranged in two longitudinal rows, one on either side of the middorsal line. A few dim light spots are usually scattered irregularly over the back. The limbs are not or but very dimly banded. The tail has dim, narrow, light bands, more distinct toward the tip of the tail.

In males, the throat is blue-gray or indigo blue, with lighter blue or whitish flecks scattered irregularly over the throat. The black nuchal collar frequently is complete ventrally. When complete, its color is continuous ventrally with a black area covering the chest, occupying a broad median area of the abdomen and extending over the groin and onto the ventral surface of the femur. When incomplete, the chest, median abdominal area and the ventral surfaces of the femora are cream. A narrow black line begins on each side of the belly opposite the axilla and extends posteriorly, covering the groin. The sides of the belly are usually pale blue, becoming campanula blue near the black borders. In lighter specimens the sides of the belly are pearl-blue.

Females have the throat much as the males, but less brilliant; the abdomen is usually uniform cream, but may have, in very large specimens, faint traces of the markings of the male. A few dim, bluish spots are usually present on the chest, and occasionally are present on the abdomen.

The very young specimens have much the same dorsal coloration of the adults, except that the pattern of dark and light spots is quite distinct. The belly is cream, and the throat is coarsely, and usually very distinctly, reticulated with bluish.

Remarks. The distinctness of *melanogaster* is quite striking, despite its close relationship with *t. torquatus.* The incomplete black nuchal collar, large size, light color and general spinosity give the general impression of the *spinosus* group.

Specimens intermediate between *t. melanogaster* and *t. torquatus* are available from a locality three miles north of Maravatio, Michoacán. In this series are two specimens which, if the black nuchal collar were broader, would be typical *t. torquatus;* in the others, the collar is broken or quite narrow laterally. In the adults of the latter, however, the belly is much blacker than it is in typical *t. melanogaster.* Specimens from other points in Michoacán seem to have affinities for *t. torquatus,* and also some from parts of Guanajuato, but the remainder are quite distinct.

It is notable that Boulenger's (1897) largest specimens of *torquatus* from Mexico are either from areas of intergradation between *t. torquatus* and *t. melanogaster,* or are well within the range of the latter.

Two female specimens in the United States National Museum (Nos. 46739-40) from Miquihuana, Nuevo León, collected by Nelson and Goldman, are referred to this species despite certain differences in coloration and femoral pore count. It is possible that these represent a race which has not been described, but for the present I prefer to retain them under the name *melanogaster* until further material is available. The specimens have the following characters (46739 and 46740, respectively): snout to vent, 79.0 and 73.5 mm.; tail, 115 mm. (46739); snout to occiput, 16.3 and 15 mm.; snout to ear, 20.1 and 18.5 mm.; breadth of head, 11.8 and 11.2 mm.; hind leg, 46.5 and 46.2 mm.; tibia, 14 and 15 mm.; fourth toe, 17.8 and 17 mm.; fifth toe, 9.3 and 9 mm.; lamellae fourth toe, 19-19 and 19-19; femoral pores, 13-13 and 12-13; dorsals, 26 and 26; ventrals, 47 and 42; scales around body, 37 and 33; scales to head length, 6.3 and 5; parietal one third size of interparietal; frontal touches interparietal; 3-4 and 2-3 small scales segmented off outer edges of supraoculars; one row of scales between supraoculars and superciliaries; none of supraoculars in contact with median scales; prefrontals in contact; two canthals, the first forced above the canthal ridge on both sides in 46739; preocular divided in 47640; rows of lorilabials reduced to one by a scale below subocular in 46739; outer row of labiomentals separated from mental; inner row of labiomentals terminating anteriorly even with the suture of the second and third infralabial.

The black nuchal collar is three or four scales broad, unbroken, with light anterior and posterior borders about one scale wide, broken medially; a few light flecks on nape of neck; a light line from subocular region to ear; another light line from posterior corner of eye to nuchal collar; limbs with indistinct bands. Ground color brown-olive, without darker markings in 46740; in 46739, the back has about four indistinct, broad, dark crossbands; the tail has narrow, distinct light bands, about nineteen in number.

Another specimen from Chapala, Jalisco (EHT & HMS 2832), assigned to this subspecies, combines certain characters of *melanogaster* and *dugesii dugesii*. The dorsals from occiput to base of tail are 38, the femoral pores are 12-13, and the lateral scales have the terminal mucrone arising slightly within the free posterior border of the scales; in these characters it approaches *dugesii dugesii*. The specimen (♀) measures 95 mm. from snout to vent and the supraocular scales are entire; in these characters the specimen approaches *melanogaster*. The general dorsal coloration is more suggestive of *d. dugesii*, while the ventral coloration and character of the nuchal collar suggests *melanogaster*. It is quite possible that the specimen represents a new species. However, because of the possibility of hybridization, I prefer to consider the specimen an aberrant *melanogaster*, pending the accumulation of further material. Since typical *dugesii dugesii* and typical *torquatus melanogaster* are available from the same locality, it seems quite unlikely that this specimen indicates intergradation.

Five specimens collected by W. B. Richardson in 1893 (MCZ) and 1895 (UMMZ) at Matagalpa, Nicaragua (MCZ 6443 [4 specimens]; UMMZ 65269), are referred to *melanogaster*, with the assumption that the locality data accompanying the specimens are incorrect. A very careful comparison of these specimens with specimens of *melanogaster* from central Mexico has revealed no differences whatsoever in scale characters, with the exception that one specimen (UMMZ 65269) has a greater number of scales from occiput to base of tail (31) than normally occurs. In coloration, however, the males differ from typical *melanogaster* in having the ventral markings confined to the throat and sides of the belly; normally the chest and middle of the belly have dark markings. A young male (64 mm. snout to vent) has well-defined lateral abdominal markings. Normally no distinct markings appear in *melanogaster* of that size. The ventral scales have slipped, however, and it is assumed that this accounts for the prominence of the markings on the sides of the abdomen. The adult male (UMMZ 65269; 89.5 mm. snout to vent) has the lateral abdominal markings widely separated from each other, a condition not observed in any other specimen of *melanogaster*. It may be noted that this type of ventral coloration, with regard to the lateral abdominal markings, is typical of *serrifer* and related species. These specimens, however, are widely different from *serrifer* in many respects.

Cope's five cotypes (USNM 9874, 9876, 9878, 9880, 9895) of *ferrariperezi* purport to be from Guanajuato. If they came from that state, it seems likely that they are from the southern portion, in an area in which *melanogaster* intergrades with *torquatus*. Since Cope's specimens approach more closely in all characters to *torquatus* than to the northern subspecies, *ferrariperezi* is here considered a synonym of *torquatus*. The type of *melanogaster* (USNM 9877) is quite typical of the northern subspecies.

The haste with which Cope examined his types of *ferrariperezi* is indicated by the fact that one of them (USNM 9880) is a typical female *spinosus spinosus*.

Habits and habitat. Mr. Dunkle and I found specimens of *melanogaster* in abundance on rock fences in central Zacatecas. Certain great areas in this region are level and devoid of cliffs and canyons which the lizards probably would otherwise inhabit; as a result, the occasional rock fences were almost overcrowded. At La Colorada, Zacatecas, specimens were found in the long, deep canyons issuing from the mountains west of the town. The adults were extremely wary and difficult to approach within range of shot shells. Young specimens, born in the spring, were much more frequently seen than the adults.

Range. Northern Jalisco, west through all of Guanajuato except the extreme southern part, north through central and southern San Luis Potosí and Zacatecas. (See Fig. 8 for distributional map.)

Locality records. Aguascalientes: (FMNH 1654, C. H. T. Townsend); ten miles south of San Francisco (DHD & HMS 839). *Guanajuato:* (USNM 9877, 26137, Dugès); Celaya (FMNH 997 [2 spec.], S. E. Meek); Santa Rosa (USNM 47780, Nelson & Goldman); three miles northeast of Santa Rosa (EHT & HMS 3760-5, 3773; near Acambaro (EHT & HMS 3967, 4000, 4002-6, 4008-29); near San Felipe (EHT & HMS 4213-4227); near El Terrero (EHT & HMS 4274, 4275). *Jalisco:* (USNM 58355, J. Hurter); Calotlán (USNM 46936-41, Nelson & Goldman); ten miles west of Ojuelos (DHD & HMS 1109); near Chapala (EHT & HMS 2831, 3064-9; USNM 18971, 18975-6, P. L. Jouy); Ocotlán (FMNH 998a, 999, S. E. Meek); Florencia (USNM 46931, Nelson & Goldman); Zapotlán (FMNH 1669 [3 spec.], C. H. T. Townsend); near Jamay (AMNH 17983, 18420-9, 18474-5, Paul D. R. Rüthling); Juanacatlan (USNM 18972-4, P. L. Jouy); Atemajac (USNM 47891, E. W. Nelson); Lagos (USNM 47039, Nelson & Goldman). *Michoacán:* Querendaro (USNM 47162, E. W. Nelson). *San Luis Potosí:* (MCZ 4548, Dr. Edw. Palmer); Charcas (UMMZ 77267-77271, 77345 [27 spec.], C. L. Lundell); near San Luis Potosí (MCZ 4548 [2 spec.], Dr. Edw. Palmer); Morales (MCZ [1 spec.], W. W. Brown). *Zacatecas:* near Tiburcio (DHD & HMS 422-4, 430-454); near La Colorada (DHD & HMS 690-712, 826-836); Berriozabal (USNM 47041-2, Nelson & Goldman); Valparaiso Mts. (USNM 47871, Nelson & Goldman). *Indefinite localities:* Mexico (AMNH 17963, 17986-7, 18452; USNM 11005; USNM 25364, Dugès); Guadelupe (MCZ 6807 [2 spec.]. Comisión geográfico exploradora); Nochitongo Ditch (USNM 19004-5, J. T. Scovell & A. J. Woolman).

Measurements and Scale Counts of *Sceloporus torquatus melanogaster* (Cope)

Museum	UMMZ	EHT & HMS	EHT & HMS	EHT & HMS	DHD & HMS	UMMZ	EHT & HMS	EHT & HMS	UMMZ	EHT & HMS	EHT & HMS
Number	77271	4215	3064	3068	694	77271	3065	2831	77271	3066	4020
Snout to vent	87.0	91.0	91.5	95.0	95.0	100.0	101.0	101.0	103.0	103.0	103.0
Tail	......	......	112.5	......	......	......	......	......	......	......	......
Snout to occiput	17.5	17.0	17.0	17.0	18.0	18.5	19.0	18.0	21.0	18.0	19.0
Snout to ear	20.5	21.0	21.0	21.0	23.0	24.0	23.0	21.5	25.0	24.0	24.0
Hind leg	54.5	55.5	55.3	56.5	58.0	62.5	61.8	......	66.5	60.5	......
Tibia	15.5	16.0	16.5	17.0	17.0	17.0	18.0	17.5	19.8	17.0	20.0
Fourth toe	19.6	21.0	19.8	20.2	21.5	22.2	22.0	22.0	24.5	22.2	23.0
Fifth toe	10.0	11.1	10.8	11.0	11.0	12.0	12.7	12.0	11.8	12.5	12.0
Lamellae, fourth toe	19–20	19–19	18–19	18–18	19–19	20–?	19–20	19–?	19–20	18–19	19–19
Femoral pores	16–16	16–16	17–18	17–17	14–14	16–17	19–19	19–19	16–19	18–18	20–20
Dorsals	28	29	30	29	28	27	30	30	27	29	28
Ventrals	48	56	46	51	47	46	53	55	49	49	52
Scales around body	35	37	34	35	36	33	37	35	36	38	40
Scales to head length	5.8	5.2	5.0	5.0	5.3	5.0	5.8	5.5	5.6	5.0	5.0
Ratio hind leg to snout-vent	62.6	60.9	60.4	59.4	61.0	62.5	61.1	......	64.5	58.2	......
Ratio fourth toe to snout-vent	22.6	23.0	21.6	21.2	22.6	22.2	21.7	21.7	23.7	21.5	22.3
Sex	♀	♂	♀	♀	♂	♀	♂	♂	♂	♂	♂

Measurements and Scale Counts of *Sceloporus torquatus melanogaster* (Cope)—Concluded

Museum	DHD & HMS	DHD & HMS	DHD & HMS	DHD & HMS	DHD & HMS	DHD & HMS	USNM	DHD & HMS	EHT & HMS	DHD & HMS	DHD & HMS
Number	453	446	449	450	691	443	9877	669	4023	?	454
Snout to vent	104.0	107.0	110.0	113.0	119.0	121.0	121.5	123.0	127.0	128.5	129.0
Tail	....	130.0	....	....	155.0	155.0	....	....	....	....	....
Snout to occiput	19.0	19.8	19.0	19.5	19.0	21.0	21.0	20.0	22.5	22.0	22.5
Snout to ear	25.0	25.6	25.5	24.0	24.0	27.0	25.5	26.5	30.0	28.0	29.0
Hind leg	62.8	64.0	68.5	67.2	57.0	69.0	65.5	70.0	70.0	69.0	74.6
Tibia	18.5	19.0	19.5	20.0	21.0	23.2	21.0	22.0	22.5	22.0	20.5
Fourth toe	23.5	24.7	24.1	23.5	19.5	21.0	21.7	25.5	24.3	25.0	25.8
Fifth toe	12.8	12.9	13.0	13.0	13.0	12.5	12.0	12.5	13.0	13.0	13.8
Lamellae, fourth toe	19–18	19–20	18–18	20–19	18–18	18–19	17–18	19–18	20–19	19–19	19–20
Femoral pores	15–16	17–19	18–18	17–17	16–17	16–16	15–17	18–21	19–20	15–16	15–15
Dorsals	28	28	27	27	28	27	28	29	26	26	29
Ventrals	48	52	48	48	41	44	50	46	55	47	50
Scales around body	36	39	33	35	34	33	36	35	38	35	36
Scales to head length	4.8	5.0	4.4	4.5	4.0	4.2	4.0	4.4	4.3	4.2	4.0
Ratio hind leg to snout-vent	60.3	59.8	62.2	59.4	47.8	57.0	53.9	56.9	55.1	53.6	57.8
Ratio fourth toe to snout-vent	22.5	23.0	21.9	20.7	17.6	19.1	17.8	20.7	19.1	19.4	20.0
Sex	♂	♂	♀	♀	♀	♀	♀	♀	♂	♀	♀

Several specimens (Nos. 410-415) in the American Museum of Natural History purport to be from Real de Pinos, Gulf of California, collected by L. Diguet. The locality is undoubtedly incorrect.

Sceloporus bulleri Boulenger

(Text Figs. 8 and 9; Plate XLIX, Fig. 1)

Sceloporus bulleri Boulenger, 1894, pp. 729-730, pl. 48, fig. 3; *idem,* 1897, pp. 481-482.

Type locality. La Cumbre de los Arrastrados, Jalisco, Mexico.

Diagnosis. A member of the *torquatus* group; supraoculars large, in a single row; femoral pores, 14 to 19; dorsal scales, 33 to 41; fourth toe slightly less than snout-ear measurement; tibia slightly shorter than snout-occiput measurement; nuchal collar three or four scales wide, uninterrupted, with light anterior and posterior borders about one scale wide, uninterrupted; nuchal collar complete about neck in large males; sides of belly in males dark blue, black-edged.

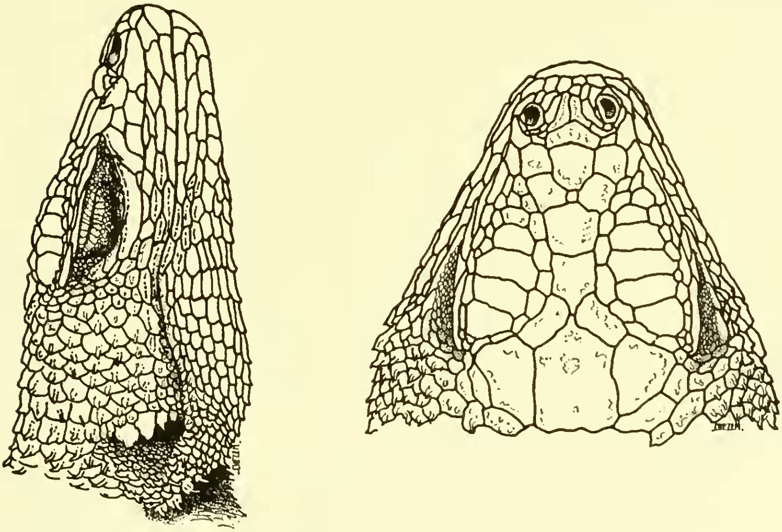

Fig. 9. Head scales of *Sceloporus bulleri* Boulenger. USNM 64655, San Sebastian, Jalisco; actual head length, snout to occiput, 19.5 mm.

Description (from USNM 64654, male). Head scales slightly rugose; interparietal nearly straight-sided, pentagonal; parietal single on each side, subtriangular, slightly less than one third size of interparietal; frontoparietals rectangular, narrowly in contact medially; frontal divided, the posterior section slightly more than half the size of the anterior; prefrontals narrowly in contact medially; three frontonasals, the median almost twice as large as either lateral; internasals irregular; nasal small, round, naris pierced in middle; supraoculars five-five, separated from the superciliaries by a single row of small scales, and from median head scales by another row of small scales; canthals two-two, normal; subnasal present, large; three small loreals on one side, one on other; preocular divided; two postoculars, strongly keeled; two rows of lorilabials, reduced on one side to one row below posterior part of subocular; approximately four supralabials and five infralabials to a point below middle of eye.

Mental more or less rounded in outline, its posterior extremity pointed, with a labial border slightly more than half that of rostral; inner row of labiomentals separated from mental by a narrow contact of first postmental and first infralabial; inner row of labiomentals terminating anteriorly below anterior half of third infralabial; three pairs of well differentiated postmentals, the scales of the anterior pair in contact medially; median and anterior gular scales slightly smaller than lateral gular scales; median and posterior gular scales with one, two or three notches on free border.

Three well-differentiated auricular lobules, smooth, the lower scale pointed, the largest subequal in size to temporal scales; temporal scales weakly keeled, weakly mucronate, about one third larger than scales between ear and lateral nuchal fold; a weak dermal fold passing from upper edge of lateral nuchal fold to lower edge of ear, surmounted by strongly keeled, very strongly mucronate scales; skin in nuchal fold without scales or granules.

Dorsal scales, except those immediately behind head, keeled and with a moderately long apical mucrone and as many as four lateral mucrones on each side of the apical mucrone; lateral body scales more strongly keeled and mucronate than median dorsals, the largest subequal in size to dorsals; dorsal scales between hind legs slightly smaller than median dorsals; ventral abdominal scales about one third size of median dorsals, smooth, rounded or with a single apical notch; scales in gular fold region with as many as six apical notches; preanal scales about one third size of median ventral abdominals.

Dorsal scales of foreleg keeled and mucronate, with several lateral mucrones; dorsal scales of upper foreleg two thirds size of dorsal scales on body, about a third larger than dorsals of lower foreleg; scales on posterior surface of lower foreleg nearly as large as dorsal scales of upper foreleg; ventral scales of lower foreleg subequal in size to dorsals of same member, smooth, notched, about twice as large as ventral scales of upper foreleg; scales in axilla squamous; lamellar formula for fingers 9-?-18-17-13 (8-14-17-17-13).

Dorsal scales of hind leg keeled and mucronate, those of thigh about two thirds size of median dorsals on body, those of shank a third larger than the former; ventral scales of tibia subequal in size to dorsals; scales about tibiometatarsal joint, except ventral scales, about one fourth size of dorsals on tibia; scales on anterior surface of femur smooth, rounded, subequal in size to dorsal scales of same member; ventral scales on femur about half as large as dorsal scales of same member, subequal in size to preanal scales; scales on posterior surface of femur subequal in size to preanal scales, strongly keeled and mucronate, strongly differentiated from dorsal scales of femur, abruptly decreasing in size posterior to femoral pore series; no postfemoral dermal pocket; lamellar formula for fingers 8-13-19-20-15 (8-13-17-21-15).

Dorsal caudal scales but slightly larger than dorsals on body; subcaudals smooth only near base of tail; enlarged postanals present, separated from each other by two small scales.

Color. General ground color, olive, darker on sides of body; no definite markings on back or limbs; nuchal collar three to four scales broad, continuous about neck in males; light borders about one scale wide, uninterrupted, the anterior border terminating at upper margin of lateral nuchal fold; posterior light border passing onto extreme proximal end of upper foreleg; no other markings on neck nor on sides of head; throat slate, with central area light blue in color in both males and females, but more distinct in the former; sides of belly blue in males, bordered medially by black, which in large males covers the chest; a small area in groin black; females with sides of belly tinged with blue and with a few irregular black areas on chest; in females a few white scales on throat; remainder of belly and ventral surface of tail white or cream.

Variation. Only four specimens of this species have been available for study. The variation in scalation of these specimens is as follows: parietals about one third size of interparietal; frontoparietals divided in none, in contact medially in two; frontal touches interparietal in two; frontal normally divided in all; supraoculars entire in all, with one complete and sometimes another incomplete row of scales between them and superciliaries (in FMNH 1670 the inner, incomplete row has two relatively large scales on one side and one on the other side); supraoculars four or five; prefrontals in

Measurements and Scale Counts of *Sceloporus bulleri* Boulenger*

Museum	BMNH	BMNH	BMNH	BMNH	USNM	BMNH	FMNH	USNM	BMNH	BMNH	BMNH	USNM
Number	....	....	....	....	64664	....	1670	64654	....	....	....	64655
Snout to vent	69.0	70.0	74.0	79.0	83.5	91.0	93.0	94.0	95.0	96.0	96.0	101.0
Tail	....	....	....	....	....	....	....	138.0	....	....	....	....
Snout to occiput	15.0	15.0	17.0	17.0	17.0	19.0	17.0	19.0	22.0	21.0	22.0	19.5
Snout to ear	17.0	17.0	19.0	19.0	21.2	21.0	21.5	24.0	25.0	25.0	25.0	25.0
Hind leg	....	....	....	....	....	....	57.5	....	....	....	....	59.0
Tibia	14.0	15.0	16.0	16.0	15.8	18.0	15.5	....	21.0	21.0	21.0	18.0
Fourth toe	17.0	17.0	20.0	20.0	20.0	21.0	21.6	23.0	25.0	25.0	24.0	22.5
Fifth toe	....	....	....	....	11.0	....	11.2	12.8	....	....	....	12.0
Lamellae, fourth toe	....	....	....	....	20–20	....	17–18	20–21	....	....	....	21–22
Femoral pores	15–15	15–15	15–14	15–15	15–17	15–15	13–15	19–?	15–14	18–18	17–18	17–18
Dorsals	35	35	33	38	38	36	41	41	33	39	34	40
Ventrals	....	....	....	....	53	....	60	58	....	....	....	61
Scales around body	41	44	44	44	40	42	44	42	42	44	40	43
Scales to head length	8.0	8.0	8.0	8.0	7.0	8.0	7.5	8.0	8.0	9.0	8.0	7.0
Ratio, hind leg to snout-vent	....	....	....	....	....	....	61.8	....	....	....	....	88.4
Ratio, fourth toe to snout-vent	24.6	24.2	27.0	25.3	23.9	23.0	23.2	24.4	26.3	26.0	25.0	22.2

* Data on British Museum specimens taken from Boulenger (1897, p. 482).

contact in two, separated by contact of median frontonasal and frontal in one, by an azygous scale in the other; canthals two, the first forced above the canthal ridge in two specimens; preocular divided on one side in one, on both sides in another; lorilabials reduced to one row below subocular on one side of one specimen; outer row of labiomentals separated from mental in all; inner row of labiomentals terminating anteriorly between the anterior part of the third infralabial and the posterior part of the second; auricular lobules three to five, not greatly enlarged. FMNH 1670 is aberrant in having thirteen femoral pores on one side.

Boulenger (1897), who had eight specimens, states that the frontal is "sometimes in contact with the interparietal, but more usually separated from it by the frontoparietals." The dorsal scale rows are in either convergent or parallel rows. Other variations are given in the accompanying table.

Range. Known only from the western and southern parts of the state of Jalisco. (See Fig. 8 for distributional map.)

Locality records. Volcano of Colima (FMNH 1670, C. H. T. Townsend); La Laguna (USNM 64664, Nelson and Goldman); San Sebastian (USNM 64654-5, Nelson and Goldman); Colonia Brizuela (Boulenger, 1894, 1897); La Cumbre de los Arrastrados (Boulenger, 1894, 1897); Hacienda de Jalisco (Boulenger, 1897).

Sceloporus mucronatus mucronatus (Cope)

(Text Figs. 10 and 11; Plate XLIX, Fig. 2)

Sceloporus torquatus ? Gravenhorst, 1837, pp. 762-764, pl. 66, figs. 6-12; ? Sumichrast, 1882, p. 37 (part), Cope, 1885, pp. 401-403 (part); *idem*, 1887, p. 37 (part); ? Günther, 1890, pp. xii, 66 (part); Boulenger, 1897, pp. 477-481 (part); Cope, 1900, pp. 336, 340, 347-350, fig. 50.

Sceloporus torquatus mucronatus Cope, 1885, p. 402; Cope, 1887, pp. 37-38; Günther, 1890, p. 77; Cope, 1900, p. 349.

Sceloporus torquatus torquatus ? Cope, 1885, pp. 402, 403; ? Cope, 1887, p. 37.

Sceloporus torquatus poinsettii Boulenger, 1885, p. 220 (part); *idem*, 1897, p. 481 (part).

Type locality. Mirador, Vera Cruz. Cotypes USNM 25074-9, Sartorius collector. No. 25077 designated as lectotype.

Diagnosis. Dorsals, 27 to 30 from occiput to base of tail, weakly keeled, weakly mucronate, but with several lateral mucrones; upper lateral scales somewhat larger than median dorsals, more strongly keeled and mucronate; dorsal scales of body somewhat smaller than largest dorsal caudals; median ventrals about one third or one fourth as large as dorsals; scales around body, 34 to 38; head scales smooth; frontoparietals always in contact medially, or separated by an azygous scale; supraoculars always in two series; canthals irregular, usually two, the first sometimes forced above the canthal ridge, the second canthal and subnasal contacting; femoral pores, 11-17 on each side, averaging about 13; tibia about as long as shielded part of head; length of fourth toe about equal to distance from snout to posterior margin of ear; a black nuchal collar, about four scales wide, continuous about throat in adult males; collar bordered on each side by a light band one scale wide; the posterior border sometimes continued over upper foreleg near insertion; a broad median dark band usually visible, composed of about five large, dim blotches, which are sometimes separated from each other by narrow, somewhat lighter areas; two parallel dark lines, one on either side of the median ventral line, extend from near the chin to the gular fold region; tail dimly banded; dorsal ground color olive to wood brown. In adult males, sides of the abdomen and area anterior to gular fold region caerulean or cobalt blue; gular fold region black; area anterior to this becoming darker with age, losing all trace of markings; breast, median abdominal area and region about groin black.

Description (from EHT & HMS 2092). Interparietal moderately large, about three times as large as either parietal; a parietal on each side, not much longer than broad; frontoparietals rectangular, separated medially by a single azygous scale; posterior section of frontal rectangular, about two thirds the size of the anterior section; prefrontals in contact medially; two rows of enlarged supraoculars, the scales of each approximately of equal size and not much larger than scales in the series separating the supraoculars from median head scales; two irregular or incomplete rows of scales separating supraoculars from superciliaries; median and lateral frontonasals subequal in size; internasals quite irregular; nasals and internasals separated from rostral by a single row of scales; naris pierced about in the middle of nasal, its anterior rim slightly the wider; two canthals on one side, one on other (first canthal fused with subnasal); subnasal and loreal large, latter slightly the larger; preocular divided, the upper half about one and one half times larger than lower, keeled; lorilabials in two complete rows below loreal, preocular and subocular, not imbricating; three and three fourths or four and one half supralabials to a point below middle of eye, and about five lower labials to the same point; outer labiomental series separated from mental by almost one half the length of the first infralabial; inner labiomental series terminating below middle of second infralabial on one side, below suture between second and third infralabial on other side; about six pairs of well-differentiated postmentals, the scales of the anterior pair in contact medially. Scales of head, except in gular region, pitted, less so in the occipital, temporal, supra- and interorbital regions.

Five smooth auricular lobules, the second and third largest; scales in temporal region between eye and ear keeled, mucronate, about equal in size to scales between ear and lateral nuchal fold, which are more strongly mucronate; dorsal scales weakly keeled, moderately mucronate, with two to four lateral mucrones, more numerous in lumbar region; lateral scales similar to dorsals, some distinctly larger than median dorsals; ventrals about one third or one fourth as large as dorsals, rounded in pubic region, with an apical notch in the middle of abdomen and in anterior gular region, with several notches on sides of abdomen and in posterior gular region; preanals about two thirds as large as median abdominals, somewhat smaller than scales on posterior surface of femur; dorsal caudals, slightly beyond base of tail, nearly twice as large as median dorsals of body; subcaudals smooth; postanals enlarged.

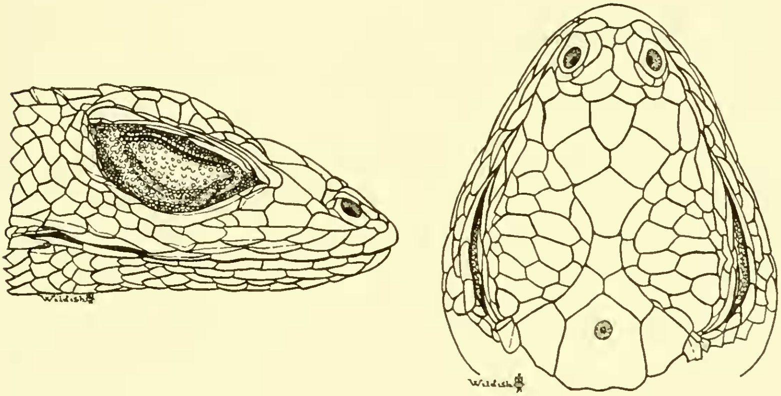

Fig. 10. Head scales of *Sceloporus mucronatus mucronatus* (Cope). EHT & HMS 2556, near Totalco, Vera Cruz; actual head length, snout to occiput, 15 mm.

Dorsal scales of humerus somewhat larger than those on lower foreleg, slightly smaller than median dorsals of body; ventral scales larger on lower forearm than on upper, smooth, notched; lamellar formula for fingers 9-14-17-16-13 (9-13-17-?-12).

Dorsal scales of tibia one and one half times as large as dorsals of femur, and distinctly larger than median dorsals on body; ventral scales of tibia larger than those on femur; lamellar formula for toes 8-12-18-18-13 (8-13-17-18-14).

Color. Head and neck slate; black collar four scales broad, with a light border one and one half to two scales wide on each side; anterior border terminating on each side between upper edges of ear and lateral nuchal fold; black collar continuous about neck; posterior light border crossing over proximal end of humerus; a series of four large, confluent, slate-colored spots of indefinite outline on middle of back, forming a broad band from light border of collar to base of tail; sides of body light olive, without darker marks; tail with narrow light bands at about every fourth whorl; limbs apparently with narrow, indistinct light bands; throat navy blue, almost black; posterior gular area, chest and a broad area down middle of abdomen black, with irregular, splotched areas of white appearing on posterior part of chest and in the median ventral line on abdomen; sides of abdomen caerulean or cobalt blue, lighter toward sides of body; median black border of lateral blue areas continuous to and covering a considerable area of the groin, and extending onto proximal anterior surface of femur; a few irregular black spots in preanal area; ventral surface of tail immaculate.

Variation. The scales of the head are essentially the same as in other species of the *torquatus* group. The supraoculars are very regular, in two rows, the outer row composed of scales but slightly smaller than those of the inner row. The scales between the enlarged supraoculars and the median head scales are very large—about half as large as the scales of the adjacent row of enlarged supraoculars. The first large scale of the inner supraocular series may fuse with a scale in the series adjacent medially, thus contacting the median head scales (occurs on both sides in seven specimens, one side in six). There are always at least parts of two rows of small scales between the outer series of enlarged supraoculars and the superciliaries. In some cases there are parts of three rows. The preocular is usually not divided (single on both sides in four specimens, one side in three). Usually the two series of scales above the supralabials are not reduced to one below the subocular (reduced on both sides in seven specimens, on one side in two). The medial of the two series of scales intercalated between the series of postmentals and the infralabials usually begins at a point about even with the suture between the second and third infralabial, although in one specimen it begins even with the suture between the third and fourth. The lateral series of these two intercalated rows begins very near the mental, but does not quite touch it, separated by less than half the length of the first infralabial. The first canthal is forced above the canthal ridge, resulting in a contact between the second canthal and subnasal, on both sides in two specimens, on one side in two. The prefrontals are separated by an azygous scale in three specimens; the median frontonasal is invariably separated from the frontal.

Remarks. This species is related to *torquatus,* agreeing with the latter in the character of the carination and mucronation of the body scales, in the number of dorsals from occiput to base of tail, and in a number of color characteristics. It differs widely, however, in the following: Supraoculars in two rows; frontoparietals contacting on the median line; median frontonasal invariably separated from frontal; femoral pores fewer and the two series more widely separated medially; prefrontals rarely not in contact on the median line; two parallel blue lines always present on the throat; and an indistinct broad, dark band down the middle of the back. That *mucronatus* cannot be a subspecies of *torquatus* is further indicated by the fact that they exist side by side in the same locality, retaining their identity without question. Specimens of both species are in the collections from Toxtlacuaya, Vera Cruz.

The closest relationship of *m. mucronatus* is with *m. omiltemanus* (Günther), from which it differs in possessing usually a smaller number of dorsal scales from occiput to base of tail, dorsal caudals larger than dorsals on body, fourth toe usually shorter than distance from snout to posterior margin of ear, supraoculars in two even rows, and a different coloration.

Specimens of this species were found four miles east of Encero, Vera Cruz, associated with *Sceloporus serrifer.*

Cope's description of *mucronatus* was based on six specimens (USNM 25074-9) from Mirador, Vera Cruz, collected by Doctor Sartorius. Unfortunately, the cotypes have characters intermediate between *omiltemanus* and typical *mucronatus.* Typical specimens of the latter are available from the region about Jalapa, and typical specimens of *omiltemanus* are available from the region about Orizaba. Mirador is exactly between these two localities, and Cope's cotypes are very nearly exactly intermediate between typical specimens of the two subspecies. It is my conclusion that the characters of the series of cotypes as a whole approach more closely to those of the northern subspecies than to those of the southern. The color characters typical of the northern subspecies are not present, but neither are the color characteristics of *omiltemanus* present. The scale characters and proportions of the cotype correspond, on the other hand, more closely to the northern than to the southern form. Although a certain color pattern is one of the most distinctive features, I prefer to consider these cotypes as belonging to the northern subspecies, since scale characters approach and since there is a possibility that the types once had color and markings not now visible which would also approach those of what I shall call typical *mucronatus*.

As first reviser, I further designate USNM 25077, a male having scale characters most closely approaching the typical, as the lectotype of *mucronatus*.

Habits and habitat. Specimens were collected in western Vera Cruz on rock cliffs at a rather high elevation above Jalapa.

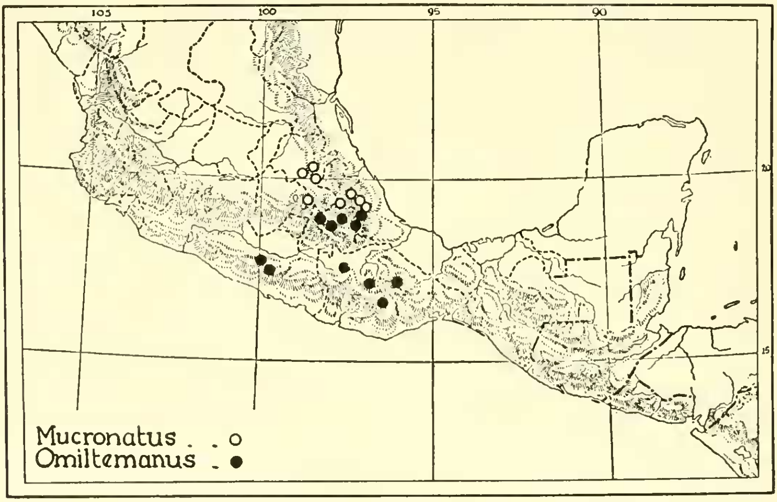

Fig. 11. Distribution of *Sceloporus mucronatus mucronatus* (Cope) and *S. m. omiltemanus* (Günther).

UMMZ 65270 contains five well-developed young, removed from the oviducts. No date is on the specimens.

Range. Parts of the states of Hidalgo, Vera Cruz, Puebla and Mexico.

Locality records. Vera Cruz: Jalapa (Cope, 1885, *et al.*); Mirador (Cope, 1885) (type locality); Las Vigas (USNM 47589-90, E. W. Nelson); Toxtlacuaya, about eighteen miles west of Jalapa (EHT & HMS 1795-7, 1859, 1861-2, 2092-8, 2130-1); Cruz Blanca (EHT & HMS 2132); four miles east of Encero (EHT & HMS 2519); near Totalco (EHT & HMS 2556, 2558, 2564, 2566-2568). *Puebla:* Fifteen miles east of San Marcos (EHT & HMS 1854-1858). *Mexico:* San Juan Teotihuacán (MCZ 1890, Dr. G. O. Rogers); ? Bay south of Mexico City (USNM 2963, I. Potts). *Hidalgo:*

Measurements and Scale Counts of *Sceloporus mucronatus mucronatus* (Cope)

Museum	USNM	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	USNM	EHT & HMS	EHT & HMS
Number	25078	2094	2564	2561	2130	2095	2131	25077	1858	2098
Snout to vent	98.0	98.0	96.5	95.5	95.0	94.0	91.0	88.0	88.0	87.0
Tail	....	137.0	....	113.0	....	....	....	....	110.0	....
Snout to occiput	18.2	18.0	17.0	16.0	17.8	16.3	16.0	17.0	15.2	15.5
Snout to ear	22.5	22.5	21.1	19.5	23.0	21.0	20.3	20.7	20.2	19.5
Hind leg	60.0	61.0	56.0	53.0	60.0	58.0	55.0	59.0	54.8	54.9
Tibia	17.0	18.0	16.3	16.0	17.0	17.3	15.5	17.8	17.0	15.5
Fourth toe	20.7	22.2	18.5	17.0	21.5	22.0	19.9	21.4	19.5	21.1
Fifth toe	11.9	12.1	9.6	9.8	11.0	11.8	10.5	11.9	10.5	11.1
Lamellae, fourth toe	19–20	19.0	19.0	18.0	18.0	19.0	21.0	19–20	21.0	20.0
Femoral pores	12–13	11–11	13–13	13–15	11–12	11–12	12–13	12–13	16–17	12–13
Dorsals	30	29	29	29	28	27	30	28	30	28
Scales around body	40	37	36	36	36	37	34	36	38	36
Scales to head length	5.2	5.0	4.5	4.5	5.0	4.3	4.5	5.7	4.7	5.0
Ratio, hind leg to snout-vent	51.0	62.2	58.0	55.4	63.1	61.7	60.4	67.0	62.2	63.1
Ratio, fourth toe to snout-vent	21.1	22.4	19.1	17.8	22.5	23.3	21.8	24.3	22.1	24.2
Sex	♂	♂	♀	♀	♂	♂	♀	♂	♀	♀

Measurements and Scale Counts of *Sceloporus mucronatus mucronatus* (Cope)—Concluded

Museum	USNM	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	USNM	EHT & HMS	USNM
Number	25075	1856	2092	2559	2558	2132	25076	1862	25074
Snout to vent	86.5	86.5	85.0	83.0	80.0	77.5	77.0	75.0	74.0
Tail	....	....	....	99.+	....	....	....	....	....
Snout to occiput	16.3	15.5	16.6	15.0	14.7	15.6	15.3	15.1	14.8
Snout to ear	20.4	19.5	20.5	19.0	18.5	19.5	19.0	18.5	17.5
Hind leg	57.6	56.2	55.5	52.0	49.0	48.0	50.3	....	48.2
Tibia	16.5	15.2	16.5	15.0	15.0	14.7	14.5	14.0	14.9
Fourth toe	21.3	20.0	20.2	18.1	17.0	19.7	19.3	18.2	17.4
Fifth toe	12.0	11.0	11.5	9.5	9.9	10.7	10.4	10.0	10.3
Lamellae, fourth toe	18–18	22	18	18	19	21	19–19	19	18–19
Femoral pores	12–13	15–15	11–12	11–12	14–14	13–14	13–13	12–?	13–15
Dorsals	31	29	28	29	30	30	30	29	30
Scales around body	37	38	37	37	37	38	34	37	37
Scales to head length	5.3	5.0	5.5	5.0	5.0	5.5	6.0	5.5	5.6
Ratio, hind leg to snout-vent	66.5	64.9	65.2	62.6	60.1	61.9	65.3	....	64.8
Ratio, fourth toe to snout-vent	24.6	23.1	23.7	21.8	21.2	25.4	25.0	24.2	23.5
Sex	♂	♀	♂	♂	♀	♂	♂	♂	♀

(MCZ 31737); Tulancingo (USNM 47591, 47032-3, E. W. Nelson); El Chino (USNM 47291, E. W. Nelson); Guerrero Mill (MCZ 10700-5, 17114-5, W. M. Mann; UMMZ 65270 [2 spec.]); Velasco (MCZ 13651-4; UMMZ 71439 [3 spec.], 71453). *No data:* UMMZ 56487 (2 spec.).

Sceloporus mucronatus omiltemanus (Günther)

(Text Figs. 11 and 12; Plate L)

Sceloporus torquatus ? Gravenhorst, 1837, pp. 762-764, pl. 66, figs. 9-12; Bocourt, 1874, pp. 171-173, pl. 18, figs. 9, 9a, 9b, 9c (part); Sumichrast, 1882, p. 37 (part ?); Cope, 1885, pp. 401-403 (part); Günther, 1890, pp. xii, 66 (part); Boulenger, 1897, pp. 477-481, fig. 1 (part); Gadow, 1905, pp. 194, 214 (part).

Sceloporus poinsettii Bocourt, 1874, p. 173 (part).

Sceloporus torquatus torquatus ? Cope, 1885, pp. 402, 403; ? *idem*, 1887, p. 36.

Sceloporus torquatus poinsettii Boulenger, 1885, p. 220 (part); *idem*, 1897, p. 481 (part).

Sceloporus omiltemanus Günther, 1890, pp. xii, 66, pl. 32, fig. A; Boulenger, 1890, p. 78.

Sceloporus torquatus omiltemanus Taylor, 1931, p. 131.

Type locality. Omilteme, Guerrero.

Diagnosis. A species of slightly more than moderate size, belonging to the *torquatus* group; head shields smooth; supraoculars in two irregular rows; frontal rarely contacting interparietal, usually separated by an azygous scale, occasionally by contact of the two frontoparietals; laterals about one third smaller than dorsals, in oblique series; dorsals weakly keeled, mucronate, in parallel or slightly converging series, usually 30 to 38 from occiput to base of tail, rarely less than 30; laterals a little more strongly keeled and mucronate than dorsals; upper scale of auricular series extremely large, larger than preceding scales and much larger than other auricular scales; tibia about as long as shielded part of head; fourth toe as long as or slightly longer than distance from snout to posterior margin of ear; ratio of hind leg to snout-vent measurement, 61.4 to 69.7; ratio of fourth toe to snout-vent measurement, 22.3 to 26.4; black nuchal collar about four scales wide, curving slightly posteriorly, and light bordered; posterior light border complete, one to two scales wide, extending onto humerus; anterior border similar, but very short, not extending beyond lateral nuchal fold and occasionally interrupted; sides of belly cobalt blue in males, not or but narrowly and indistinctly bordered with black laterally; gular fold region black, continuous with the black of the nuchal collar; area anterior to gular fold region uniform cobalt or azure blue; dorsal caudals slightly larger than dorsals on back.

Description (from EHT & HMS 3080, male). Dorsal head shields smooth; enlarged supraoculars in two rows, the outer row formed of scales about two thirds as large as those of the inner row;

supraoculars separated from superciliaries by one complete and another incomplete row of small scales and bordered medially by a series of small scales; superciliaries five; one large, heavily keeled subocular, followed posteriorly by two small, strongly keeled postoculars; preocular scale strongly keeled, in contact with second canthal and with the rows of scales above supralabials; first canthal with a narrow downward extension which contacts the rows of scales above the supralabials, separating the loreal from the subnasal; not quite half of second canthal forming a portion of the superciliary series; two or three irregular rows of scales above supralabials, two complete rows between the subocular and supralabials, and one row continued around snout above rostral; rostral about two and one half times as broad as high; interparietal much larger than either parietal, separated from the frontal by the frontoparietals; latter as large as parietals, in contact on median line; frontal divided, the posterior section not quite half as large as the anterior; two prefrontals, in contact on median line; three frontonasals, the laterals in contact with both canthals; internasals rather irregular, but

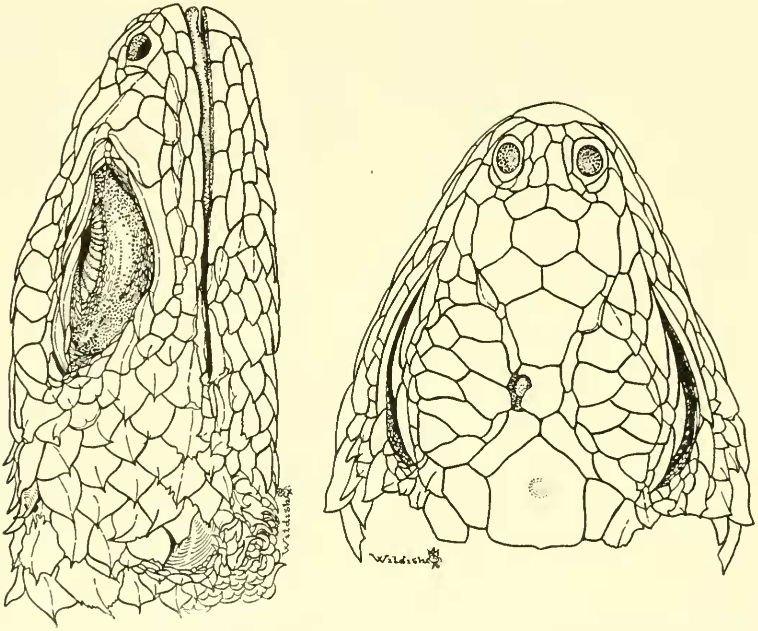

FIG. 12. Head scales of *Sceloporus mucronatus omiltemanus* (Günther). EHT & HMS 3080, two miles west of Acultzingo, Vera Cruz; actual head length, snout to occiput, 18 mm.

posterior pair distinct and separated from first canthal by a single small scale; six scales surround the nasal; four supra- and five infralabials to a point below the middle of the eye.

Mental pentagonal, its labial border four fifths that of rostal; mental followed by a series of about five enlarged scales on each side, the anterior in contact with its fellow on the median ventral line; this series of scales separated from infralabials anteriorly by a single row of elongate scales (except anterior scale, which is in contact with the first infralabial), posteriorly by two rows, the second row beginning below the junction of the second and third infralabials and in contact with the series of postmental scales; scales in temporal region keeled, mucronate in area near ear; anterior margin of ear with three smooth scales, the upper very large, much larger than other auricular scales and distinctly larger than preceding scales; lateral cervical pouch present, a fold from about its middle or upper margin to the lower margin of ear; this fold surmounted by scales somewhat larger than the adjacent ventral scales, but somewhat smaller than adjacent scales dorsal to the fold; scales surmounting this fold strongly mucronate; dorsal scales in parallel series (a small, short series intercalated on the median line), weakly keeled, mucronate, with one or two small lateral mucrones; lateral scales in diagonal rows, about one third smaller than dorsals, more strongly keeled and mucronate than dorsals, with many lateral mucrones; dorsal scales about as large as or somewhat smaller than dorsal caudals; median ventral scales about one third as large as dorsals; breast scales somewhat larger than those in median abdominal region; preanal scales somewhat smaller than the latter; anterior scales in area in front of gular fold region about half as large as the posterior scales; scales in area near angle of jaws but little larger than those in median gular region.

Dorsal scales of foreleg keeled, mucronate, those of upper foreleg about two thirds the size of the dorsals, those of lower foreleg a little more than half as large as those on upper foreleg; dorsal scales on hand weakly keeled or smooth, weakly mucronate; ventral scales on foreleg smooth, mucronate, those of lower foreleg about the same size as dorsals of the same member, those of upper foreleg becoming smaller toward axilla; one dorsal, two lateral and one ventral row of scales around fingers and toes, all continuous to tip except the two laterals which terminate behind the last scale of the other series; lamellar formula for fingers, 9-13-15-16-13.

Dorsal scales of hind limb strongly keeled, mucronate, less strongly on foot; dorsal scales of tibia slightly smaller than dorsals on body, those of femur somewhat smaller than those of tibia; ventral scales of tibia somewhat smaller than dorsals of the same member; scales on anterior surface of femur somewhat smaller than dorsals of same member, becoming progressively smaller toward femoral pore series; scales immediately in front of femoral pores about equal in size to preanal scales; scales immediately behind femoral pores very small, much smaller than those immediately in front of femoral pore series, becoming gradually smaller toward dorsal surface; lamellar formula for toes, 9-12-18-19-13; subcaudals smooth and rounded except toward distal end of tail; dorsal caudals rather strongly keeled, strongly mucronate. A pair of enlarged postanal scales.

Color. General ground color apparently drab; dorsum posterior to nuchal collar with a pattern of light lines which follow a course down the middle of each scale row, separated from each other by narrow black lines, which include the edges of the scales. The black nuchal collar is three or four scales broad, bordered anteriorly and posteriorly by a distinct whitish band one or two scales broad. The black extends over the anterior margin of the insertion of the foreleg and traverses the gular fold region ventrally. The posterior light border is complete and extends over the proximal end of the upper forearm. The anterior border is also complete and passes laterally only to the upper edge of the lateral cervical fold. The area anterior to this is blackish slate. The limbs are hair brown, immaculate. The tail is of the same color, with lighter and darker distal bands. The area anterior to the gular fold region is azure blue; the sides of the belly are somewhat darker blue, with a faint purple tinge; the chest and median abdominal region are suffused with slate, becoming black near lateral abdominal blue areas; the ventral surfaces of the forelimbs, femora and the preanal region are suffused with slate. The ventral surface of the tail is light orange toward the base, fading distally and replaced by gray.

Variation. The variation of the head scales of sixty-eight specimens is as follows: The supraoculars are almost invariably in two rows. A single young specimen from Omilteme, Guerrero (USNM 47738), is the only exception, having but a single row of enlarged supraoculars. A peculiar variation frequently occurs, however, in the series of scales normally separating the supraoculars from the median head scales. In eight specimens one or more of the enlarged supraoculars touch the frontal (first only in three; first on one side, first, second and fifth on the other, in one; first on one side, first and second on the other, in one; first and second, in one; first, second, third and fourth [parts of each], one). The frontal touches the interparietal in five, the frontoparietals contact medially in twenty-one; and a single median scale between the frontal and interparietal is present in forty. The anterior part of the frontal is longitudinally divided in six, the posterior part in one. The preocular is separated from the row of scales above the supralabials on both sides in ten, on one side in four. The first canthal touches the lorilabials on both sides in five, on one side in three. The second canthal touches the subnasal (the first canthal above the canthal ridge) on both sides in three, on one side in five. The posterior pair of internasals contact the first canthal on both sides in seven, on one side in six. The median frontonasal narrowly contacts the frontal in two specimens, and is separated from frontal in the remainder of the series.

The length of the labial border of the mental in relation to that of the rostral varies from four fifths to a little over one half. The series of scales above the supralabials are usually two below the subocular, but occasionally reduced to one at some point below the subocular. The series of scales between the series of postmentals and the infralabials is much as in the type, except that the median of the two series begins anywhere from a point even with the junction of the first and second infralabial to a point even with the junction of the third and fourth.

The upper ear lobule is invariably larger than the other auricular scales, and larger than those preceding, except in six young specimens. The dorsal scale rows vary from parallel series to slightly converging rows.

The coloration of the adult males is much as in the specimen described. Most characteristic is the pattern of light and black longitudinal lines, which appear, so far as I am aware, in no other species of the *torquatus* group except *poinsettii*. The anterior light border of the nuchal collar is frequently broken, and the resultant spots may enclose but a single scale. The posterior light border is occasionally broken medially, and may be but one scale wide. It always extends distinctly onto the proximal end of the upper foreleg. As the specimen described is one of the largest of the series, the ventral coloration is darker than most of the other males.

Usually there is but little black ventrally, and the blue of the throat and sides of the belly is more distinct.

The dorsal coloration of the females is much as in the males, except that the longitudinal light and dark lines are less evident and are more frequently entirely absent. In these cases, small light and dark spots may be scattered over the back. In a few specimens the posterior light border of the nuchal collar is bordered behind by a very narrow black band. The ventral surface is usually whitish, sometimes with a general suffusion of blue.

In the young specimens very dim, dark bands broken medially may traverse the back. Usually the back is irregularly spotted. In only a few of the very young males are the longitudinal light and dark lines visible.

Habits and habitat. The specimens collected near Acultzingo, Vera Cruz, were found on rock cliffs on the abrupt edge of the plateau, about three fourths of the distance from the bottom. Several specimens collected on Cerro de San Luis in Oaxaca were at a considerable elevation below the evergreens.

It is assumed that *omiltemanus* is ovoviviparous, as are several other forms of the *torquatus* group, including *mucronatus mucronatus*.

Range. From central Vera Cruz in the region of Mirador south and west to the edge of the plateau in Oaxaca and Guerrero. (See Fig. 11 for distributional map.)

Locality records. Vera Cruz: two miles west of Acultzingo (EHT & HMS 3073-3080, 3082-3102, 3171-3174, 3193-3195); Maltrata (USNM 46823, Nelson & Goldman). *Puebla:* near Tehuacan (EHT & HMS 3338); vicinity of Puebla (AMNH 18815-20, Paul D. R. Rüthling); Los Reyes, near Santa Catarina (AMNH 18407, Paul D. R. Rüthling); Atzitzintla (FMNH 1516 [16 spec.], Heller & Barber, 8,500 ft.). *Oaxaca:* Cerro de San Luis, N. of Oaxaca, Oaxaca (EHT & HMS 3839-43); lower part of descent into valley of Miahuatlan (AMNH 17994-8, Paul D. R. Rüthling); Tlapencingo (USNM 47832, Nelson & Goldman); Mt. Zempoaltepec (USNM 47578-83, 47186-8, Nelson & Goldman); Tamazulapam (USNM 47325-6, Nelson & Goldman). *Guerrero:* near Chilpancingo (USNM 47830-1, Nelson & Goldman; MCZ 33903-4, W. W. Brown); Omilteme (type locality of *omiltemanus*) (Günther, 1890; Boulenger, 1897; USNM 47738, Nelson & Goldman). *Indefinite localities:* Mexico (AMNH 18400-4; USNM 31353, Boucard).

Measurements and Scale Counts of *Sceloporus mucronatus omiltemanus* (Günther)

Museum	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	USNM	EHT & HMS	EHT & HMS	EHT & HMS	FMNH	USNM	EHT & HMS
Number	3841	3843	3839	3842	3840	47831	3076	3194	3086	1516	47581	3073
Snout to vent	54.0	54.0	59.0	61.0	63.6	74.0	76.0	79.0	80.0	81.0	82.0	83.0
Tail	81.5	....	....	....	102.0	106.0	124.0	....	118.5	....	....	....
Snout to occiput	11.5	12.0	12.6	13.0	13.3	14.0	14.5	14.5	14.3	15.2	15.0	16.0
Snout to ear	14.0	15.0	15.5	16.0	16.0	17.5	19.0	18.0	17.7	18.5	19.7	20.0
Hind leg	....	37.0	....	....	44.2	49.0	53.0	51.5	52.5	50.2	50.0	54.0
Tibia	10.5	11.3	10.0	12.3	12.7	13.0	14.5	15.0	16.0	15.0	15.0	15.0
Fourth toe	14.0	15.6	16.3	16.9	17.8	19.0	20.1	20.2	20.0	19.0	19.0	20.2
Fifth toe	8.5	9.0	8.3	8.4	10.0	13.3	10.1	11.3	10.5	9.2	10.3	10.9
Lamellae, fourth toe	19–20	21–22	21–21	24–24	20–?	22–24	21–21	22–22	21–21	21–21	20–21	21–21
Femoral pores	15–?	15–14	15–16	14–15	11–12	11–12	15–15	13–13	13–13	13–13	11–11	13–14
Dorsals	33	37	34	36	36	30	38	32	32	34	32	36
Ventrals	57	57	54	62	58	46	52	50	49	53	47	48
Scales around body	38	40	42	42	40	34	38	37	37	40	37	39
Scales to head length	8.0	8.5	8.0	8.0	8.3	5.3	7.3	6.0	6.0	7.0	6.4	6.7
Ratio, hind leg to snout-vent	....	68.5	....	....	69.5	66.2	69.7	65.1	65.6	61.9	60.9	65.0
Ratio, fourth toe to snout-vent	25.9	28.8	27.6	27.7	28.0	27.0	26.4	25.5	25.0	23.4	23.1	24.3
Sex	♀	♂	♂	♂	♂	♀	♀	♀	♀	♀	♀	♀

Measurements and Scale Counts of *Sceloporus mucronatus omiltemanus* (Günther)—Concluded

Museum	FMNH	EHT & HMS	EHT & HMS	EHT & HMS	USNM	EHT & HMS	USNM	EHT & HMS	USNM	MCZ	USNM	EHT & HMS
Number	1516	3074	3092	3094	47832	3084	47186	3079	46823	33904	47830	3080
Snout to vent	83.5	84.5	86.0	86.5	87.0	90.9	91.0	92.0	93.0	95.0	101.0	101.5
Tail	125.0	137.0	....	....	....	148.0	....	142.0	145.0	....	....	162.0
Snout to occiput	16.5	16.5	15.5	15.6	16.6	17.0	18.2	17.0	17.5	18.0	19.5	18.0
Snout to ear	20.0	20.5	18.5	19.8	19.7	22.0	21.0	21.5	21.6	23.0	23.0	22.5
Hind leg	57.5	....	53.0	56.0	60.0	61.0	....	61.0	59.0	64.2	66.5	64.5
Tibia	16.0	15.5	15.0	16.5	17.5	17.0	16.3	18.0	17.9	18.5	18.0	18.0
Fourth toe	21.7	21.6	20.5	21.5	21.7	23.0	22.6	22.5	22.3	23.6	22.6	23.5
Fifth toe	10.8	12.0	10.7	11.8	11.3	12.0	13.2	12.0	12.4	13.0	13.8	12.5
Lamellae, fourth toe	21–21	25–25	23–23	19–19	21–21	21–21	21–20	20–20	20–20	19–21	21–21	19–20
Femoral pores	13–14	16–17	14–16	11–13	14–14	14–14	11–13	15–16	14–?	16–16	14–15	13–13
Dorsals	34	34	36	33	33	35	31	37	33	32	29	32
Ventrals	54	57	57	48	52	54	42	46	56	48	49	45
Scales around body	35	39	40	36	38	38	34	38	38	36	34	37
Scales to head length	7.0	7.0	6.2	6.0	5.8	7.2	6.0	6.5	6.6	6.0	5.5	6.0
Ratio, hind leg to snout-vent	68.8	....	63.9	64.7	68.9	67.7	....	66.3	63.4	67.7	65.8	63.5
Ratio, fourth toe to snout-vent	25.9	25.5	22.6	24.8	24.9	25.5	24.5	24.4	23.9	24.8	22.3	23.1
Sex	♂	♂	♀	♂	♀	♂	♂	♂	♂	♂	♂	♂

Sceloporus cyanogenys (Cope)

(Text Figs. 13 and 14; Plate LI, Fig. 2)

Sceloporus torquatus cyanogenys Cope, 1885, p. 402; *idem,* 1887, p. 37 (part); Günther, 1890, p. 77; Cope, 1900, pp. 349-350; Taylor, 1931, pp. 129-132; Burt, 1932, p. 158; Stejneger and Barbour, 1933, p. 64; Mulaik, 1935, p. 156.

Sceloporus torquatus Baird, 1859, p. 5; Yarrow, 1883, p. 58 (part); Cope, 1885, p. 169 (part); *idem,* 1887, p. 37 (part).

Sceloporus torquatus mucronatus Boulenger, 1885, p. 220.

Sceloporus torquatus poinsettii (non Baird and Girard) Burt, 1932, p. 158.

Type locality. Monterrey, Nuevo León, Mexico. Cotypes USN 31373-7 and ? ANSP 11304-5; Cope collector.

Diagnosis. A member of the *torquatus* group of the genus *Sceloporus;* dorsal scales weakly keeled, mucronate, with several lateral denticulations, 32 to 40 from occiput to base of tail; lateral scales in oblique rows, somewhat larger than median dorsals; fourth toe about equal to distance from snout to posterior border of ear; ratio of hind leg to snout-vent measurement, 58.6 to 66.9; ratio of fourth toe to snout-vent measurement, 20.3 to 25.2; supraoculars irregular, not in two equal rows, rarely in a single row; median cephalic scales not extremely irregular; preocular rarely divided; inner row of labiomentals rarely terminating posterior to suture between second and third infralabials; rows of lorilabials usually not reduced to one at a point below subocular; femoral pores usually twelve or more on each side. General ground color greenish blue (brownish prior to shedding); nuchal black collar four or five scales wide, sometimes continued on ventral surface, bordered anteriorly and posteriorly by a light band one or one and a half scales wide, both interrupted medially by a dark scale; a light spot in center of interparietal and of each parietal; body without or with dim darker markings; throat and sides of belly in males pearl blue to flax flower blue or campanula blue; lateral abdominal blue areas in males with a dark-blue medial border not encroaching on anterior distal surface of femur; throat not barred or rayed.

Description (from EHT 1284 male, collected in hills north of Los Olmos Bridge, three miles south of Rio Grande City, Starr county, Texas, August 21-23, 1931). Head and body not strongly depressed; head scales with small pits, all smooth except those between supraoculars and superciliaries, between supraoculars and median head scales, and lorilabials; interparietal large, flat, shield-shaped, its posterior border extending back of parietals about one third the length of the scale; parietal single on each side, broadly wedge-shaped, about one third the area of interparietal; frontoparietals short, rectangular, in contact medially; frontal not divided (abnormal); preoculars broadly in contact medially, nearly as large as median frontonasal; frontonasals about equal in size, the laterals contacting both canthals; a pair of rather large scales in front of median frontonasal; preceding these a median pair of internasals, separated from rostral by a row of small scales; nasal small, separated from rostral, naris pierced almost in the middle; five supraoculars, in one complete row on one side, three divided on other side; one complete and another incomplete row of scales between supraoculars and superciliaries, the scales keeled or rugose; row of scales between supraoculars and median head scales keeled; two canthals, normal; subnasal present; two loreals, the anterior somewhat larger than posterior; preocular divided; subocular followed posteriorly by two small, strongly keeled postoculars; lorilabials in two complete rows below subocular; four upper and five lower labials to a point below middle of eye.

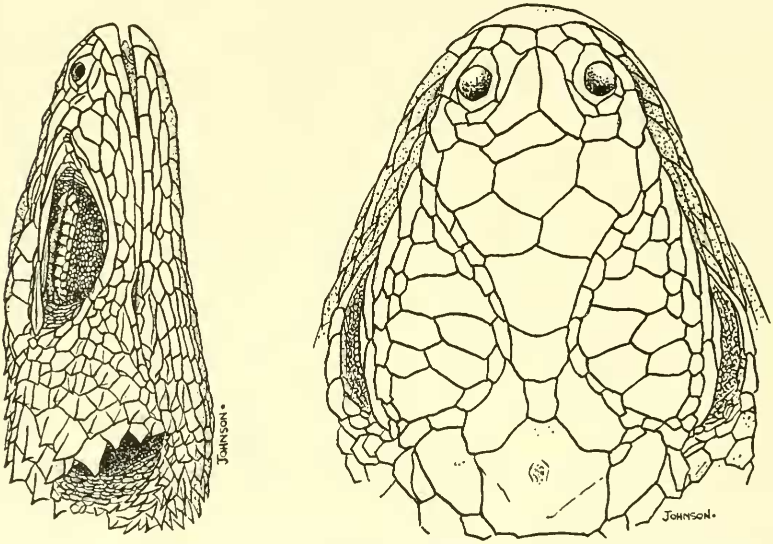

Fig. 13. Head scales of *Sceloporus cyanogenys* (Cope). EHT & HMS 4929, Arroyo Los Olmos, three miles southeast of Rio Grande City, Starr county, Texas; actual head length, snout to occiput, 16.8 mm.

Mental with a labial border slightly more than half that of rostral; outer row of labiomental scales separated narrowly from mental by narrow contact of first postmental and first infralabial; inner row of labiomentals terminating anteriorly below anterior half of second infralabial; three or four well-differentiated postmentals on each side, the scales of the anterior pair in contact medially; scales in gular region approximately subequal in size, smooth, those in the anterior part rounded, those in middle part with a single notch, and the scales in the posterior part and toward angle of jaws with two or three apical notches.

Four or five smooth, rounded auricular lobules, smaller than the preceding scales; scales in temporal region keeled, mucronate, somewhat smaller than those between ear and lateral nuchal fold; scales surmounting lateral gular fold keeled, strongly mucronate; dorsal scales weakly keeled, mucronate, with three to five lateral denticulations; lateral scales somewhat larger than median dorsals, more strongly keeled and mucronate, with as many as eight lateral mucrones; ventral abdominals about half as large as median dorsals, all with a single apical notch (except those on anterior part of chest, which have two or three); ventral scales on chest somewhat smaller than those in middle of belly; preanal scales smooth, with one or two apical notches, about half as large as median scales on belly; subcaudals smooth, mucronate, with several lateral mucrones; dorsal caudals extremely large, about one and one half times as large as median dorsals; dorsal scales between hind legs about two thirds as large as median dorsals.

Dorsal scales of foreleg about three fourths as large as median dorsals on body, those on lower foreleg about one fourth smaller than dorsals on upper foreleg; ventral scales of foreleg smooth, mucronate, denticulate, those on lower foreleg subequal in size to dorsal scales of same member, about half as large as ventral scales on upper foreleg; lamellar formula for fingers, 9-13-16-18-12 (9-13-16-17-12).

Dorsal scales of hind leg keeled, strongly mucronate, those on tibia as large as median dorsals on back, those on femur somewhat smaller; ventral scales of hind limb smooth, notched, those on tibia about two thirds as large as dorsal scales of same member; ventral scales on femur equal in size (near series of femoral pores) to preanals; scales on posterior surface of femur about twice as large as preanals, strongly mucronate, keeled, denticulate, abruptly decreasing in size immediately behind femoral pore series; lamellar formula for toes, 9-13-18- ?- ? (9- ?-17-20- ?).

Taylor (1931) has given an excellent description of the dorsal coloration:

> "The color and markings of this form, while varying in certain color characteristics, maintained a striking uniformity as regards certain of the markings of the head and neck region. The typical markings are as follows: Scales on the head, brownish olive with a cream-colored spot between the supraocular regions, one on the median parietal, and one on the enlarged lateral scales adjoining the parietals; three spots on the small scales immediately

posterior to the parietal region; a broad black collar four to five scales wide medially, but narrowing laterally, extends across the scapular region, and terminates in front of the foreleg; the scales between the parietals and the posterior median edge of the black collar are from fifteen to seventeen in number; the black collar is bordered posteriorly by a greenish-yellow to cream-colored band one to one and one half scales wide which terminates laterally at the base of the foreleg; this is, almost without exception, interrupted medially by a single scale which is black or dark green; the black collar is bordered anteriorly by an irregular band of cream, or greenish or bluish-yellow, which does not extend as far on the sides as the black collar.

"The neck in front of the bands is greenish, bluish or bluish-brown with from five to seven cream or bluish-cream spots, each covering usually about two scales; the sides of the head and neck are greenish, bluish or brownish; a black spot on the head immediately behind the superciliary scales is bordered below by a lighter, usually a cream-colored spot; a cream-colored line passes from the loreal region below the eye back across the auricular region, appearing very indistinct posteriorly.

"The general body color is usually a brilliant greenish blue (often showing metallic iridescence) or (prior to shedding) brownish. On the back the markings are variable; sometimes there are a series of light ocelli or dark blackish or brownish spots; more or less distinct transverse blotches or series of spots may be present.

"Two individuals, apparently about to shed, show the brownish coloration without or only with a trace of the greenish-blue coloration. The fore and hind legs are similar to the general body color, the hind legs frequently showing some darker mottling; the coloration of the tail varies remarkably from dull brown to bluish-black with a series of 16-18 indefinite lighter bands usually one scale wide which vary from whitish to ultramarine in color; sometimes the bands are almost obsolete."

The ventral coloration of the males is most brilliant and quite different from that of other species of the *torquatus* group. The sides of the belly and the area anterior to the gular fold region are pearl to flax flower or campanula blue. In young males the blue of the sides of the belly are bordered with a narrow band of pale blue, and the center of the throat toward the gular fold region is also pale blue. In the oldest males the blue borders of the lateral abdominal patches become marine blue, and these borders expand posteriorly, covering the region of the groin. The middle of the belly is whitish, not suffused with any darker color in even the largest males. This median band is about eight scales wide. The nuchal collar extends across the gular fold region; the centers of the scales in this region may be azure blue.

The females have no markings whatsoever on the ventral surfaces. The ventral surface of the tail in both sexes is immaculate and whitish.

Variation. Details of cephalic scalation in forty-one specimens are as follows: The frontoparietals contact in six, are separated by contact of frontal and interparietal in seven, by an azygous scale in twenty-seven, and by a median pair of scales in one. The supraoculars are extremely irregular in form; in one specimen the supraoculars are entire on both sides; in another they are entire on one side; in two specimens there are two complete rows; in the remainder they are variously divided or fused. The anterior frontal is longitudinally divided in four specimens; in two the frontal is quite irregular; in another the anterior frontal is fused with one prefrontal. The prefrontals contact medially in all but two, in which they are separated by contact of the median frontonasal and the frontal. The canthals are two in all, the first not forced above the canthal ridge by contact of the second canthal and subnasal with one exception; the first canthal touches the rows of scales above the supralabials on both sides in four specimens, on one side in ten. The two rows of scales between the subocular and the supralabials are reduced to one at some point on both sides in seven, on one side in five specimens. The first pair of postmentals are separated in one specimen. The inner of the two rows of scales intercalated on each side between the series of postmentals, and the infralabials terminate even with the suture between the first and second infralabial in five cases (two cases per specimen), at the anterior half of the second in ten cases, at the middle of the second in ten, at the posterior half of the second infralabial in sixteen, at the suture between the second and third in thirty-three, and at the anterior half of the third in eight.

The auricular scales are small, the upper not greatly enlarged, occasionally slightly larger than the preceding scales.

The median dorsal scales are weakly keeled, weakly mucronate, usually in slightly or rather strongly converging rows, but occasionally in parallel rows. The laterals are slightly more strongly keeled and mucronate, and are larger than the dorsals at a point halfway between and slightly above a line from the axilla to the groin. The laterals elsewhere, toward the ventral surfaces and toward the axilla and groin, are smaller than or no larger than the dorsals. The latter are definitely smaller than the dorsal caudals near the base of the tail. The femoral pores vary from eleven to seventeen.

Habits and habitat. Taylor (1931) gives the following notes on habits:

"While collecting in Southern Texas in 1930 I kept an eager outlook for this subspecies, which resulted in its discovery. I encountered it first near Rio Grande City in the hills, one half mile to the north of the Los Olmos bridge. The specimens were extremely numerous, as many as ten or fifteen might be seen at one time running over the face of the outcropping rock which caps the hills. The largest males seemed most wary and would disappear in deep holes in or under the rocks (rather than in cracks and crevices); the larger females and the younger specimens were less wary and instead of disappearing to safety would frequently hide from sight behind a jutting rock and then expose their heads to view a moment later and allow me to approach close enough to kill them with a .22-caliber rifle using small-shot shells. It was usually necessary to wait a considerable time before the males would reappear, only to disappear again for a longer period if they chanced to see or hear me. A series of seventeen specimens were taken at this locality.

"At Arroyo El Tigre, west of Rio Grande City, the species was encountered on the dry earth banks where no rocks were to be found. They took shelter in cracks in the earth, where they were routed by causing portions of the bank to cave in. Five adult specimens were taken here.

"Eighteen miles south of Laredo I took a single specimen at Arroyo Salado. At Eagle Pass, in the cliff on the immediate edge of the town, another specimen was found. This habitat was rocky, much the same type as at Rio Grande City, but this and a single young specimen which escaped were the only specimens observed in half a day's collecting."

It is assumed that *cyanogenys* is ovoviviparous, as are other species of the *torquatus* group.

Range. Southern Texas from Devil's river southeast to Starr county, Texas, south through northern Mexico to central Tamaulipas in the east and Santa Catarina (west of Monterrey) on the west.

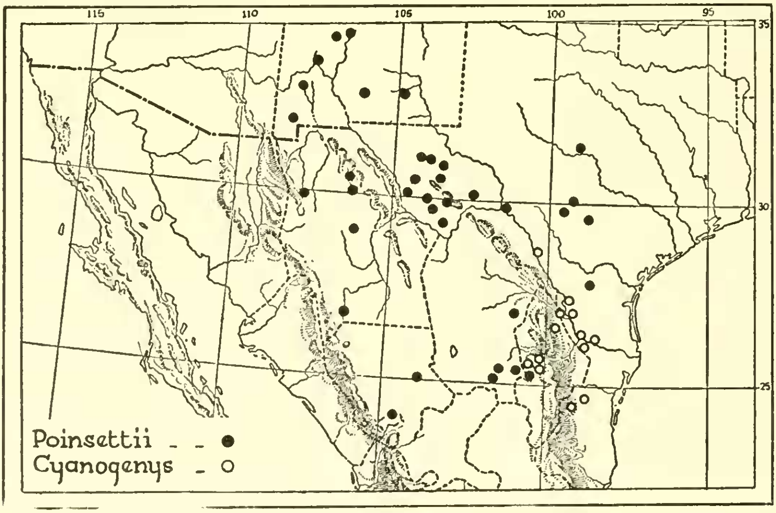

FIG. 14. Distribution of *Sceloporus cyanogenys* (Cope) and *S. poinsettii* Baird and Girard.

Measurements and Scale Counts of *Sceloporus cyanogenys* (Cope)

Museum	EHT & HMS	EHT & HMS	KU	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EH T & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS
Number	257	261	8179	260	259	4801	4720	451	256	4885	4884	4991	4803	4883	4931	4721
Snout to vent	85.0	97.0	98.0	98.5	100.0	104.0	112.0	115.0	117.0	120.0	120.5	129.0	130.0	132.0	132.0	141.0
Tail	......	......	140.0	......	143.0	149.0	162.0	160.0	......	171.0	161.0	......	......	......	......	......
Snout to occiput	16.0	16.5	17.0	19.0	17.1	19.0	21.5	21.0	19.5	21.5	20.5	22.0	21.0	24.0	24.5	25.0
Snout to ear	20.5	21.7	22.5	23.0	22.7	18.5	27.0	27.5	26.0	27.0	27.0	29.0	28.0	30.0	32.0	31.5
Hind leg	55.0	57.0	62.5	65.2	64.0	69.0	75.0	67.5	72.0	78.0	73.0	78.5	78.0	84.5	82.0	85.5
Tibia	16.5	17.5	17.5	18.5	19.0	20.0	21.0	20.0	21.7	23.5	22.5	24.0	25.0	24.0	24.0	26.8
Fourth toe	20.5	22.0	20.0	25.0	23.5	24.0	26.5	27.0	27.0	27.5	25.0	27.0	26.5	29.3	29.0	30.0
Fifth toe	11.5	12.5	10.5	13.0	12.0	12.5	14.9	14.1	14.2	15.5	12.0	14.0	14.0	15.2	16.0	16.0
Lamellae, fourth toe	20–20	21–20	20–20	22–21	19–19	20–20	20–21	22–22	21–21	19–20	19–19	19–20	18–19	20–20	21–21	21–21
Femoral pores	13–14	13–15	12–12	14–17	14–15	12–13	15–16	12–13	13–16	12–13	11–12	12.13	13–13	14–14	13–14	12–12
Dorsals	38	38	40	39	39	34	37	39	37	37	34	35	35	34	36	37
Ventrals	52	50	54	54	54	49	52	53	47	48	49	49	54	53	54	53
Scales around body	38	43	40	45	42	39	40	42	39	38	37	42	39	43	42	42
Scales to head length	7.0	5.5	5.8	7.0	6.0	6.0	6.5	6.5	5.5	5.5	5.3	5.3	5.0	6.2	6.7	6.5
Ratio hind leg to snout-vent	64.7	58.7	63.7	66.1	64.0	66.3	66.9	58.6	61.5	65.0	60.8	60.8	60.0	63.6	62.1	60.6
Ratio fourth toe to snout-vent	24.1	22.6	20.4	25.2	23.5	23.0	23.6	23.4	23.0	22.9	20.7	22.6	20.3	22.1	21.9	21.2
Sex	♂	♀	♀	♂	♀	♀	♂	♂	♀	♂	♀	♀	♀	♂	♂	♂

Locality records. UNITED STATES: Texas, *Starr Co.:* Arroyo Los Olmos, three miles southeast of Rio Grande City (Taylor, 1931; EHT & HMS 4800, 4801, 4803, 4883-5, 4925-31, 4991, 5051-53; EHT 1 spec.; MCZ 33549); Arroyo El Tigre, west of Rio Grande City (Taylor, 1931; KU 8176-8); Rio Grande City (KU 8197-8210, 15010-21; EHT 2 spec.); five miles east of Rio Grande City (LMK 25239-40, S. Muliak); twenty miles northwest of Rio Grande City (KU 15022-3); near San Ignacio (near Rio Grande City) (EHT 4 spec.). *Zapata Co.:* near Zapata (EHT & HMS 4719-21); four miles east, one half mile south of Zapata (UMMZ 74752 [2 spec.], Helen Monroe). *Webb Co.:* Arroyo El Salado, eighteen miles south of Laredo (Taylor, 1931; KU 8180-1). *Maverick Co.:* Eagle Pass (Taylor, 1931; KU 8179; USNM 47587-8, W. Lloyd & C. P. Streator). MEXICO: *Tamaulipas:* three miles south of Nuevo Laredo, June 7, 1932 (EHT & HMS 256-264); four miles southwest of Nuevo Laredo (Burt, 1932); Mier (USNM 47715-7, 47457, W. Lloyd); between Laredo and Camargo (USNM 2959, A. Schott); Rancho El Plato, thirty-eight miles, by road, southeast of Remosá (USNM 95182, Edgar Bowles); Tamaulipaca (UMMZ 69228 [2 spec.], 69229 [2 spec.], 69230 [3 spec.], 69231 [2 spec.], 69232 [7 spec.], 69241, L. R. Dice); San José (UMMZ 69233-5, L. R. Dice); Garza Valdes (FMNH 1287). *Nuevo León:* six miles south of Sabinas Hidalgo, June 10, 1932 (EHT & HMS 447-451); Monterrey (type locality) (Cope, 1885, 1887, 1900; USNM 31373-7 [cotypes]; ANSP 11304-5 [probably cotypes; no locality given]); Caderita (MCZ 5940); Santa Catarina (USNM 4107, Lt. B. Couch); Pesquieria (USNM 2925, Lt. B. Couch).

Sceloporus poinsettii Baird and Girard

(Text Figs. 14 and 15; Plate LI, Fig. 1)

Sceloporus poinsettii Baird and Girard, 1854, pp. 126-127; Baird, 1859, p. 5, pl. 29, figs. 1-3; Cope, 1875, p. 48; Coues, 1875, p. 595; Yarrow, 1875, p. 573; Yarrow & Henshaw, 1878, p. 1645; Cope, 1880, p. 17; *idem,* 1883, p. 12; Garman, 1884, p. 17 (part); *idem,* 1887, p. 14 (part); Dugès, 1887, p. 114; Günther, 1890, pp. xii, 65; Herrick, Terry and Herrick, 1899, pp. 123-125, pl. xv; Bailey, 1913, p. 34.

Sceloporus torquatus ? Yarrow, 1883, p. 58; Garman, 1887, p. 14; Cope, 1888, p. 397.

Sceleporus poinsettii Müller, 1865, p. 602.

Tropidolepis poinsettii Dugès, 1870, p. 243 (very doubtful).

Agama torquata ? Garman, 1884, p. 17 (part).

Sceloporus poinsetti Yarrow, 1883, p. 58 (part).

Sceloporus torquatus poinsettii Boulenger, 1885, p. 220 (part); Cope, 1885, p. 402; *idem,* 1886, p. 283; *idem,* 1887, p. 37; Boulenger, 1897, p. 481 (part); Cope, 1900, pp. 340, 349, 350-352, text fig. 51 (part); Brown, 1903, p. 546; Stone and Rehn, 1903, p. 31; Bailey, 1905, p. 42; Ditmars, 1907, pp. 130, 140-141, pl. 45; Strecker, 1909, p. 13; Strecker, 1915, p. 20; Stejneger and Barbour, 1917, p. 56; Van Denburgh, 1922, pp. 326-329; Stejneger and Barbour, 1923, p. 59; Van Denburgh, 1924, pp. 206-207; Strecker, 1927, p. 14; *idem,* 1928, p. 12; Taylor, 1931, pp. 130-131; Mosauer, 1932, pp. 7-8; Stejneger and Barbour, 1933, p 65; Strecker, 1933, p. 78; *idem,* 1935, p. 32.

Type locality. "Rio San Pedro of the Rio Grande del Norte, and the province of Sonora." Cotypes USNM 2948 (2 spec.) and 2952 (2 spec.); J. H. Clark, collector.

Diagnosis. A member of the *torquatus* group of the genus *Sceloporus,* possessing a broad, black nuchal collar two and one half to three scales broad, uninterrupted medially, with broad, light-colored borders about two scales wide; tail very strongly banded, the dark bands wider than the light bands and extending completely around tail near tip; general color, straw to reddish yellow; back frequently with broad bands; dorsals, 31 to 41 (average 35.7) from occiput to base of tail, nearly smooth, not or but weakly mucronate; supraoculars in two complete rows; median cephalic scales usually very irregular; the anterior frontal usually divided; preocular rarely divided; inner row of labiomentals rarely terminating anterior to suture between second and third infralabials; lorilabials usually reduced to one row at some point below subocular; femoral pores usually not over 12; maximum snout-to-vent measurement, about 120 mm.

Description (from DHD & HMS No. 105, male). Head somewhat compressed; dorsal and lateral cephalic scales rather strongly pitted; parietal single on each side; interparietal pentagonal, about three times as large as either parietal; frontoparietals divided; an azygous scale separating frontoparietals medially; posterior section of frontal about one half the size of anterior section of frontal; a small scale between frontal and frontoparietals on one side; anterior section of frontal longitudinally divided; prefrontals separated medially by an azygous scale, which is wedged deeply between either half of anterior section of frontal; median frontonasal wedged deeply between prefrontals, separated on one side by a small scale from lateral frontonasal; scales in internasal region quite irregular; nasal (and internasals) separated from rostral by a row of small scales; anterior rim of nasal much broader than posterior rim; supraoculars about six, in two rows, the scales subequal in size; supraoculars separated from median cephalic scales by one complete row of scales, and separated from superciliaries by one complete and another incomplete row of scales; two canthals, the anterior not forced above canthal ridge; one subnasal, small; loreal single, somewhat larger than subnasal; preocular not divided; subnasal short, followed by two small, strongly keeled postoculars; lorilabials in two rows, reduced to one at a point near posterior end of subocular; supralabials about four, infralabials six, to a point below middle of eye.

Mental more triangular than pentagonal in shape, with a labial border almost equal to that of rostral, postmentals poorly differentiated, about five pairs discernible, the scales of the anterior pair in contact; outer row of labiomentals narrowly separated from mental by a narrow contact of first postmental and first infralabial; inner row of labiomentals terminating below middle of third infralabial; scales in gular region about half as large as median ventral abdominals, about equal in size to preanals; gular scales entire anteriorly, with a single median notch posteriorly, and with two notches laterally at posterior part of throat.

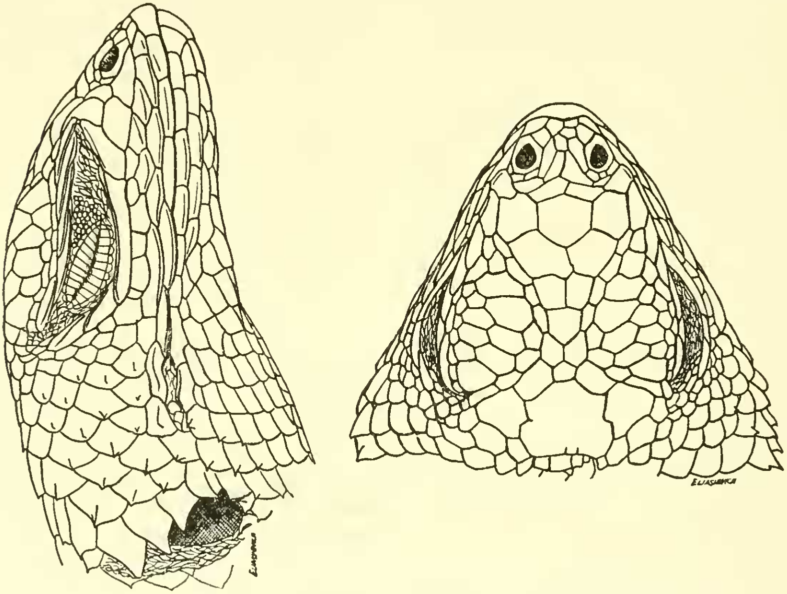

FIG. 15. Head scales of *S. poinsettii* Baird and Girard. DHD & HMS 1142, 30 miles west of Monterrey, Nuevo León; actual head length, snout to occiput, 17 mm.

Three or four well-differentiated auricular lobules, smooth, acuminate, smaller than preceding scales; scales in temporal region weakly keeled, weakly mucronate, with a few lateral mucrones; lateral nuchal fold not extremely deep, surmounted by very long, strongly acuminate, keeled scales; dorsal scales of neck and body smooth or very weakly keeled, not acuminate, but with several mucrones at free end; lateral scales weakly keeled, mucronate, with numerous lateral denticulations, arranged in oblique rows; median lateral scales distinctly larger than median dorsals; scales between bases of hind legs one half to one third as large as median dorsals on back; dorsal caudal scales weakly keeled, strongly mucronate, those near base of tail distinctly larger than median dorsals on back; median ventral scales one fifth or one sixth as large as largest laterals, with a weak median notch; scales at extreme anterior portion of breast larger than scales posterior; subcaudals smooth; postanals distinctly enlarged, separated by two small scales.

Dorsal scales of foreleg subequal in size, those of humerus somewhat the larger, all slightly smaller than median dorsals of back, weakly keeled, rather strongly mucronate, with several lateral denticulations; ventral scales of lower foreleg subequal in size to dorsal scales of same member, about three or four times as large as ventral scales of humerus; ventral scales of foreleg smooth, acuminate; lamellar formula for fingers, 9-13-15-17-11 (8-12-15-16-12).

Dorsal scales of tibia somewhat larger than those on femur, subequal in size to dorsal scales on body; dorsal scales of hind leg weakly keeled, strongly mucronate, with several lateral mucrones; ventral scales of hind leg smooth, rounded or notched, those on tibia slightly smaller than dorsals of same member, those on femur much smaller, the smallest about equal in size to preanal scales; scales on posterior surface of femur four times as large as preanals, keeled, strongly mucronate, abruptly becoming quite small immediately posterior to femoral pore series; no postfemoral dermal pocket; lamellar formula for toes, 9-11-16-18-13 (8-11-15-17-13).

Color. General ground color, above, straw yellow; head reddish-brown above; black nuchal collar about three scales wide, bounded on either side by a light band two scales wide, each very narrowly interrupted medially; anterior light border terminating on each side between ear and foreleg; posterior border terminating at axilla, not crossing onto shoulder; a light band about two scales wide across neck halfway between nuchal collar and occiput, terminating at upper edge of ear; a broad light line down each dorsal scale row, one separated from the other by a narrow black line involving the lateral edges of each scale row; these lines terminating at base of tail; about five faint dark bands across back, separated from each other by slightly narrower lighter bands; these bands very distinct on tail, the darker bands (reddish-brown in color) about two and one half scales wide, the lighter bands (straw yellow in color) about one and one half scales wide; dark bands completely encircling tail near tip; limbs straw yellow, with no evidence of markings.

Chest cream, with dark gray flecks; black nuchal collar complete across ventral surface of neck, but very narrow; throat uniform caerulean blue, not barred; sides of belly pale to caerulean blue, bordered medially by a black band which posteriorly involves a considerable area in groin and passes onto proximal portion of femur, and anteriorly becomes narrower and disappears about one fourth of the distance from the axilla to the groin; preanal region pale blue, with flecks of black; ventral surfaces of limbs pale yellow.

Variation. Detailed data on the character of the head scales of fifty-two specimens from all parts of the range of the form show the following variation: Frontal never contacting interparietal; frontoparietals contacting medially in fourteen; an azygous scale separating frontoparietals medially in thirty-five (frontoparietal and frontal scales indistinguishably broken up in the other three specimens); frontoparietals divided into two on both sides in twenty specimens, and on one side in thirteen; the anterior frontal is divided longitudinally in thirty-eight specimens; the posterior frontal is divided longitudinally in five specimens, broken into three sections in seven specimens, into four sections in four, and into five sections in one; the parietal and frontoparietal of one side are fused in one specimen; the supraoculars are usually in two rows, the outer composed of scales smaller than the inner; in seven specimens the outer row is represented by two or three scales segmented from the inner row, and do not form a complete outer row as in the others; one enlarged supraocular narrowly contacts the median head shields on one side in three specimens, on both sides in one; the row of scales separating the supraoculars from the median head shields is supplemented by the addition of one, two or three small scales, forming an incomplete inner row, in eight specimens; the prefrontals contact medially in thirty-seven specimens, are separated by contact of the median frontonasal with the frontal in two specimens, and are separated by an azygous scale in twelve; the preocular is separated from the rows of scales above the supralabials on both sides in four specimens, on one side in four; the two canthals are present in all, the first forced above canthal ridge by contact of second canthal and subnasal on both sides in three specimens, on one side in four; the anterior canthal touches the rows of scales above the supralabials on both sides in five specimens, on one side in two; the posterior canthal touches these rows in one specimen; the rows of scales below the subocular and above the supralabials are reduced to one at some point on both sides in thirty-eight specimens, on one side in four; the inner of the two series of scales intercalated between the rows of mentals and the infralabials continues forward usually to about even with the anterior half of the third infralabial (on one side in nineteen, on both sides in twenty-two); on one side in two specimens it extends to the middle of the second infralabial; on one side in two, to the posterior part of the second; on one side in six, to the suture between the second and third; on both sides in one and on one side in five, to the middle of the third; on one side in three, to the posterior part of the third; on one side in six and both sides in one, to the suture between the third and fourth; on one side in eight and both sides in one, to the anterior part of the fourth; on one side in one, to the middle of the fourth; on one side in one, to the middle of the fifth.

The dorsal scale rows are sometimes parallel, sometimes converging (two or three rows lost in eleven specimens, one in ten). In two the rows are actually diverging, a row being intercalated at about the middle of the back and continuing to the base of the tail. In several (four noted) the rows diverge anteriorly and converge posteriorly, a short median row being intercalated.

The median lateral scales and the caudals near the base of the tail are distinctly larger than the median dorsals in all.

Preceding the anus males frequently have several modified scales appearing somewhat porelike.

The scales on the anterior margin of the ear are usually smaller than those preceding them; only rarely is the upper scale slightly larger.

The coloration is quite uniform and very characteristic. In no other species of the *torquatus* group are the dark and light bands about the tail so distinct. Toward the tip of the tail the bands are visible upon the ventral caudal surface (not in *cyanogenys*). Other characteristics of the dorsal coloration are, likewise, distinctive. The nuchal collar is always complete, and about three scales wide. It is bordered anteriorly and posteriorly by a light band about two scales wide, the anterior of which extends laterally to the lateral nuchal fold, and the posterior to the upper margin of the insertion of the foreleg, but not passing onto the leg. Either or both light borders rarely may be broken medially, but are never broken into spots or appear as narrow bands. The black collar may extend across the gular fold region, uniting ventrally. Anterior to the nuchal collar is a light band about two scales wide across the posterior part of the head, passing laterally to the upper edge of the ear. This band may be broken into spots, but usually is distinct and complete. A light band, usually visible, passes from the upper labial region to the anterior margin of the ear.

Frequently, more often in males, there are light bands which pass down the back along the middle of each longitudinal scale row, separated from each other by narrow black bands. This type of coloration occurs also in *mucronatus omiltemanus.* The females frequently lack this and may also have irregular and indistinct dark spots on the back.

In males, the sides of the belly and the gular region are caerulean blue, becoming darker with increased age. The sides of the belly may become somewhat tinged with purple, and the gular region marine blue, which increases in intensity posteriorly toward the gular fold region. The blue of the sides of the belly is bordered medially by a rather narrow black band, which expands posteriorly and covers the entire area of the groin. The median abdominal area is whitish, suffused with black in older males.

The gular region in females is irregularly marked with black.

Habits and habitat. This species seems to be confined entirely to a rocky habitat. In Texas and New Mexico they are found on limestone bluffs in considerable numbers, and are difficult to capture. Not only does their color, except for the brilliantly banded tail, blend well with the color of the rocks, but they are exceedingly wary, diving into cracks or under rocks at the first sign of danger. Once hidden in cracks, it is only with the greatest difficulty that they can be routed. Rarely are they discovered before they have hidden under rocks or in cracks.

In Durango and Chihuahua specimens were secured on red granite ledges, where the lizards assumed a reddish hue quite similar to the color of the rocks.

The species is ovoviviparous, as is indicated by a female in the Museum of Zoölogy of the University of Michigan (No. 49846). This specimen, collected May 31, 1916, contains ten well-developed embryos. The young are presumably born during the early part of June.

Remarks. The characters which distinguish *poinsettii* from *cyanogenys* are numerous, although for the most part minor. No intergradation between the two forms has been observed in the specimens examined, specimens of each form remaining quite distinct in the areas of closest approach of their respective ranges. The type locality of *cyanogenys* is Monterrey, Nuevo León, and specimens of typical *poinsettii* are available from a locality thirty miles west of Monterrey. In Texas, specimens of *poinsettii* are available from the mouth of the Pecos river, Valverde county (and the type locality, in part, is Devil's river), and specimens of *cyanogenys* from Eagle Pass, Maverick county, not over seventy miles away.

Aside from color differences, which are quite striking and constant both in live and preserved material, *poinsettii* is to be distinguished from *cyanogenys* by the following points: supraoculars usually in two complete rows, the inner row seldom incomplete and never lacking; median cephalic scales usually very irregular, the anterior frontal usually divided; the preocular rarely separated from the rows of scales above the supralabials (10 in 96 in *poinsettii*, 60 in 78 in *cyanogenys*); the medial of the two rows of scales between the postmentals and infralabials terminating farther posteriorly (in 9 counts of 96 in *poinsettii* the row extends anterior to the suture between the second and third infralabials; in *cyanogenys*, only 6 in 78 have the row extending posterior to that suture); the rows of scales between the subocular and supralabials rarely not reduced to one at some point (84 out of 96 in *poinsettii* have the rows reduced to one; in *cyanogenys*, 16 in 76); femoral pores usually fewer. The maximum size is also much greater in *cyanogenys*, the latter reaching 143 mm. snout to vent, *poinsettii*, 118 mm. (KU 8185).

Range. Southern New Mexico east to central Texas, south through western Nuevo León and southern Coahuila to central Durango. (See Fig. 14 for distributional map.)

Locality records. UNITED STATES: New Mexico: *Eddy Co.:* Guadalupe Mts. (Mosauer, 1932; KU 14996), Guadelupe Mts., forty-four miles northwest of Carlsbad (AMNH 46389, Barnum Brown), Dark Canyon, Guadelupe Mts. (MCZ 31728-9); *Grant Co.:* Santa Rita del Cobre (Cope, 1900; Van Denburgh, 1922), Hachita (Van Denburgh, 1922), Gatton's Park (LMK 24280-3, D. O. Scott); *Lincoln Co.:* Forks of Ruidoso Creek (Van Denburgh, 1922); *Otero Co.:* Alamogordo (Van Denburgh, 1922), Sacramento Mts. (ANSP 15163, Rehn & Viereck); *Sierra Co.:* Chloride, Grafton (Van Denburgh, 1922); *Socorro Co.:* Magdalena Mts. (Herrick, Terry and Herrick, 1899; Van Denburgh, 1922), Socorro (Cope, 1883; Van Denburgh, 1922). Texas: *Bexar Co.:* (Strecker, 1927); Helotes (Taylor, 1931; Strecker, 1933; KU 8174-5); San Antonio (AMNH 44411, R. B. Parks). *Brewster Co.:* (Strecker, 1909); Chisos Mts., 6,000 ft. (Bailey, 1905); fifty miles south of Marathon (Bailey, 1905); Glass Mts., five miles south of Marathon (KU 15009, 15001-4); three miles southwest of Alpine (Taylor, 1931; KU 14993-4, 15131, 15133, 15137-40); six miles west of Alpine (Taylor, 1931); Alpine (KU 8182-94); fourteen miles north of Terlingua (Taylor, 1931, KU 8166-8168; EHT 2 spec.). *Culberson Co.:* Guadalupe Mts. (Bailey, 1905; Mosauer, 1932). *Brown Co.:* San Saba river, south of Brownwood (H. M. Smith). *Duvall Co.:* (Boulenger, 1897); San Diego (Cope, 1900; Strecker, 1915). *Jeff Davis Co.:*

six miles east of Valentine (KU 14998-15000); Davis Mts. (KU 18422), Davis Mts., 5,700 ft. (Bailey, 1905); Phantom Lake (UMMZ 49846, H. T. Gaige). *Kerr Co.:* Japonica (Bailey, 1905). *Pecos Co.:* Pecos (Stone and Rehn, 1903; ANSP 15768-84, A. E. Brown); fifty miles southwest of Pecos (Brown, 1903); Fort Stockton (Bailey, 1905). *Presidio Co.:* Paisano (Bailey, 1905). *Real Co.:* West Frio Canyon (Strecker, 1935). *Reeves Co.:* near Toyah (Bailey, 1905); Waihnacht's Draw, Pecos Valley (MCZ 31745). *Terrell Co.:* Between Dryden and Sanderson (KU 15005-8). *Valverde Co.:* Rio San Pedro of the Rio Grande del Norte (now Devil's river) (Baird and Girard, 1854; Yarrow, 1883; Cope, 1900; USNM 2948 [2 spec.], J. H. Clark [cotypes]); five miles east of mouth of Pecos river (KU 14995); near mouth of Pecos river (KU 14997).

MEXICO: *Chihuahua:* (Cope, 1887, 1900; USNM 14233, 14243); Ojo Caliente (Yarrow, 1883; Cope, 1900; USNM 2958); Chihuahua City (Cope, 1886); ten miles south of Moctezuma, June 20, 1934 (DHD & HMS 104-113); eighteen miles north of Escalón, June 25, 1934 (DHD & HMS 246-256); Colonia Garcia (ANSP 1, Dr. W. E. Hughes); Sierra Madre (USNM 47419-21, Nelson and Goldman); Balleza (USNM 47417, Nelson and Goldman); Casas Grandes (FMNH 1655, C. H. T. Townsend); Samachique (FMNH 11841-7, 15724 [18 spec.], R. M. Zingg); Arroyo del Alamos (USNM 42873, E. C. Erdis). *Coahuila:* Monclova (Garman, 1887; USNM 46699, Nelson & Goldman); Santa Caterina (Cope, 1900); fifteen miles east of Saltillo, July 31, 1934 (DHD & HMS 1141); Sierra Guadelupe (USNM 47591-2, Nelson and Goldman); Jaral (FMNH 1547, Heller & Barber). *Durango:* (MCZ 16030, P. Townsend; USNM 23992, Dr. E. Palmer); Ciudad (Günther, 1890; Boulenger, 1885, 1897); six miles northeast of Pedriceña, August 27, 1932 (EHT & HMS 4361, 4362, 4364-4371); near Pedriceña, August 29, 1932 (EHT & HMS 4456-4470); near Pasaje, August 28, 1932 (EHT & HMS 4456); Coyotes (FMNH 1510 [10 spec.], Heller & Barber); Durango (USNM 46844-5, Nelson & Goldman). *Nuevo León:* thirty miles west of Monterrey, July 31, 1934 (DHD & HMS 1142).

The above locality records appear to be reasonably correct. There are many more which do not so appear. They are from Arizona (Coues, 1875; Yarrow, 1875, 1883; Yarrow and Henshaw, 1878; Cope, 1900; MCZ 6831 [Flagstaff?]); California (Boulenger, 1895; KU 11383); Colima (Bocourt, 1874); Guerrero (Boulenger, 1897); Jalisco (Dugès, 1870); Mexico (Dugès, 1887); Michoacán (Dugès, 1887); Oaxaca (Bocourt, 1874); San Luis Potosí (Garman, 1887);

Measurements and Scale Counts of *Sceloporus poinsettii* Baird and Girard

Museum	DHD & HMS	DHD & HMS	EHT & HMS	KU	EHT & HMS	DHD & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS
Number	252	254	4467	8175	4469	111	4460	4362	4464	4461
Snout to vent	69.0*	72.0	80.0	81.0	85.0	86.0	89.0	90.0	91.0	91.0
Tail	103.0	....	....	....	....	111.0	....	....	137.0	....
Snout to occiput	13.8	13.5	15.0	16.3	16.0	15.5	16.0	15.0	17.0	16.0
Snout to ear	17.0	17.5	19.0	20.0	20.5	19.5	20.0	19.0	21.0	20.0
Hind leg	47.5	43.0	54.0	51.5	55.5	53.0	57.0	54.0	61.0	56.5
Tibia	13.5	12.5	15.0	15.5	16.0	16.0	17.4	15.5	19.0	17.0
Fourth toe	17.0	16.2	17.5	18.3	20.0	18.5	19.9	19.0	22.0	20.0
Fifth toe	9.0	8.5	9.9	10.7	11.0	9.9	11.0	9.5	11.0	12.0
Lamellae, fourth toe	20–20	16–17	17–17	18–19	18–18	16–18	18–18	17–17	18–19	18–18
Femoral pores	10–11	10–11	11–12	11–11	14–14	11–12	10–11	10–10	9–10	11–11
Dorsals	40	41	36	35	38	33	36	36	37	38
Ventrals	56	54	51	52	58	55	49	54	48	54
Scales around body	41	43	34	37	39	38	37	41	39	38
Scales to head length	8.0	8.0	6.5	7.0	7.0	6.5	6.7	6.0	6.0	7.0
Ratio, hind leg to snout-vent	68.8	59.7	65.0	63.5	65.2	61.6	64.0	60.0	68.6	65.3
Ratio, fourth toe to snout-vent	24.6	22.5	21.8	22.5	23.5	21.5	22.3	21.1	24.1	21.9
Sex	♂	♂	♀	♂	♂	♂	♀	♀	♀	♂

* Back broken.

Measurements and Scale Counts of *Sceloporus poinsettii* Baird and Girard—*Concluded*

Museum	EHT & HMS	DHD & HMS	EHT & HMS	DHD & HMS	DHD & HMS	KU	KU	KU	DHD & HMS
Number	4463	112	4462	1141	1142	8174	14995	14997	105
Snout to vent	94.0	95.5	95.5	96.5	97.0	108.0	110.0	110.0	112.0
Tail	....	....	....	....	....	....	148.5	....	....
Snout to occiput	16.5	17.5	17.5	17.0	17.0	19.0	18.5	19.5	19.5
Snout to ear	22.0	-1.5	23.0	21.0	21.5	24.0	25.0	24.5	23.5
Hind leg	58.0	57.0	58.0	58.0	61.0	67.5	....	70.0	65.0
Tibia	18.0	17.0	17.5	16.8	19.0	20.0	20.0	20.0	16.5
Fourth toe	20.2	20.0	20.5	20.0	22.0	23.7	22.9	25.0	21.5
Fifth toe	10.7	11.0	10.5	10.7	11.4	13.0	13.3	13.5	11.5
Lamellae, fourth toe	19–19	19–20	18.18	19–19	20–19	18–18	19–19	20–20	17–18
Femoral pores	11–11	11–12	10–11	12–12	10–10	11–11	10–12	13–14	9–11
Dorsals	34	33	34	33	33	34	36	36	35
Ventrals	51	52	51	49	55	57	60	58	55
Scales around body	35	38	37	38	39	39	39	41	37
Scales to head length	6.0	6.0	6.0	6.0	6.0	6.0	5.7	6.0	5.5
Ratio, hind leg to snout-vent	61.7	59.7	60.7	60.1	62.8	62.5	....	63.6	59.6
Ratio, fourth toe to snout-vent	21.4	20.9	21.4	20.7	22.6	21.9	20.8	22.7	19.1
Sex	♀	♂	♂	♀	♀	♂	♂	♂	♂

Sonora (Baird and Girard, 1854; Baird, 1859; Yarrow, 1883; Garman, 1884; Cope, 1900; Van Denburgh, 1922; USNM 2970, Col. Graham; USNM 2952 [2 spec.], J. H. Clark [cotypes]); Tamaulipas (Burt, 1932); and Vera Cruz (Boulenger, 1885, 1897).

Sceloporus lineolateralis Smith

(Text Figs. 16 and 17; Plate LII)

Sceloporus lineolateralis Smith, 1936, pp. 92-95.

Type locality. Six miles northeast of Pedriceña, Durango, Mexico. Holotype EHT & HMS 4323; paratypes EHT & HMS 4321-2, 4324-6, 4332-40, 4342-3, 4363, 4372a and b, 4471-6.

Diagnosis. A spècies of moderate size belonging to the *torquatus* group; dorsal head scales smooth; lateral scales about half as large as median dorsals, but not strongly differentiated from them; ventral scales about one third as large as laterals; longitudinal rows of dorsals converging toward median line; thirty-eight to forty-seven scales from occiput to base of tail; length of tibia about equal to length of shielded part of head; length of fourth toe about equal to distance between snout and posterior margin of ear; hind limb reaches to ear; fourteen to twenty femoral pores, not extending onto preanal region; enlarged supraoculars in a single row; two canthals; a narrow, uninterrupted black collar on neck, arising from shoulder, with a light, sometimes medially interrupted, posterior border; sides of belly in males china blue, very slightly darker medially; gular region very pale blue.

Description of type. Dorsal head scales smooth; a single row of enlarged supraoculars, bordered medially by a single row of small scales, and separated from the superciliaries by one complete and another incomplete row of scales; seven superciliaries, the last overlapping the preceding two (the sixth superciliary is entirely overlapped by the fifth); one large, heavily keeled subocular, followed posteriorly by a series of seven scales which curves upward about the orbit, contacting the parietal; lower two postocular scales strongly keeled; the series of scales between supraoculars and frontals continued downward between postoculars and margin of orbit, terminating at the second postocular (from subocular); preocular scale strongly keeled, in contact with second canthal and with the rows of scales above supralabials; loreal larger than subnasal, smaller than preocular, in contact with both canthals; two rows of low, elongate scales above supralabials, the lower row continuing around snout, passing above rostral, the other terminating anteriorly below the subnasal; two canthals, the second with but a very small portion entering the superciliary series; rostral low, about three times as broad as high; interparietal at least twice as large as parietal, separated from frontal by a pair of frontoparietals in contact medially; a single large parietal on each side; frontal divided transversely, the anterior section about one half larger than posterior; two prefrontals, broadly in contact on median line, larger than anterior section of frontal; three frontonasals, the median about as large as either prefrontal; the lateral frontonasals somewhat smaller, in contact with both loreals; three irregular pairs of internasals, the posterior pair the largest and in contact with the frontonasals, the anterior pair smallest and in contact with the row of scales behind rostral; a single small scale separates the posterior internasals from anterior loreal, but does not enter series about nasal; latter broadly in contact with subnasal, narrowly in contact with row of scales above rostral, and surrounded above by four small scales; four supra- and five infralabials to a point below the middle of the eye.

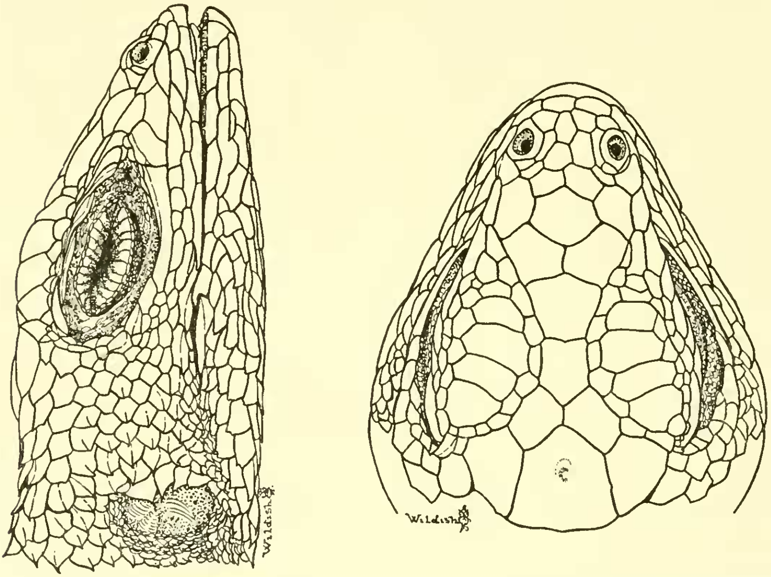

FIG. 16. Head scales of *Sceloporus lineolateralis* Smith. EHT & HMS 4323, six miles northeast of Pedriceña, Durango; actual head length, snout to occiput, 15 mm.

Mental pentagonal, its labial border about two thirds that of rostral; mental followed by a series of four or five enlarged scales on each side, the anterior in contact with its fellow on the median ventral line; this series of scales separated from infralabials anteriorly by a single row of elongate scales (except anterior, which is narrowly in contact with anterior infralabial), posteriorly by two rows, beginning below the middle of the third infralabial; scales on dorsal and lateral surfaces of head (including temporal region) more or less pitted; scales in temporal region keeled, mucronate in area near ear; four or five rows of scales on neck behind occiput nearly smooth, not or but weakly mucronate; anterior margin of ear with four smooth, pointed scales, the upper largest and larger than preceding scales; lateral neck fold low, relatively shallow, a weak fold from its upper margin to lower margin of ear; the scales surmounting this fold no larger than those adjacent, much smaller than those in the lateral gular region; median anterior gulars smaller than posterior median gulars; lateral gulars in region of angle of jaws much larger than median gulars; scale rows on neck parallel, abruptly differentiated from the scale rows arising near the insertion of the foreleg and passing obliquely upward onto back; median dorsals weakly keeled, mucronate, usually with not over one lateral mucrone, except on neck, where there may be as many as two; median dorsals about twice as large as laterals, gradually differentiated from them; laterals three or four times as large as median ventrals midway between fore and hind limbs; laterals more strongly keeled and mucronate than dorsals, with as many as three lateral mucrones; scales in axilla very small, smooth, rounded; scales following axilla gradually increasing in size and becoming more strongly mucronate, but smooth for about one third the distance from axilla to groin.

Dorsal scales of upper and lower foreleg keeled and mucronate, the latter somewhat smaller than dorsals on upper foreleg; dorsal scales on hand and toes smooth or very weakly keeled, the former slightly mucronate, some of the latter bi- or tricuspid; one dorsal, two lateral and one ventral row of scales around fingers and toes, all continuous to tip except the two laterals, which terminate behind the last scale of the other series; ventral scales of upper and lower foreleg smooth, the latter about twice as large as former; scales of palm and sole weakly keeled and mucronate; ventral lamellae with three or five mucrones, about equal in size; lamellar formula for fingers, 9-13-16-16-14 (9-13-16-15-14).

Dorsals of tibia and femur strongly keeled, mucronate, about the size of median laterals; anterior ventrals of femur and ventrals on tibia subequal in size; ventrals on femur decreasing in size toward femoral pores; lamellar formula for toes 7-12-19-21-18 (8-12-18-?-17); breast scales much larger than median ventral abdominal scales; median ventrals increasing in size laterally, merging with laterals; anterior preanal scales about equal in size to those anterior to series of femoral pores; a pair of enlarged postanals; dorsal scale rows converging on base of tail; scales behind femoral pores, except one or two rows immediately adjacent to femoral pores, keeled, with three mucrones, of about the same size as those preceding the pore series; dorsal scale rows of tail somewhat larger than median dorsals on body, more strongly keeled and mucronate.

Color. Back, dorsal surface of limbs, and temporal region of head glaucous to pale blue; sides of body tinged with gray; a narrow black collar two or three scale rows wide on neck, arising almost straight from shoulders and not continued onto ventral surfaces; anterior and posterior borders of collar parallel, the latter with a light edge one or two scales wide; a few indistinct light spots on neck; sides of belly from axilla to groin china blue, lighter toward axilla, darker posteriorly; a small black area in groin, median edges of lateral blue areas very slightly darker, with no less than five rows of cream-colored scales separating them; gular region and breast very pale blue, the breast suffused with gray; ventral surfaces of limbs and tail cream.

Variation. Enlarged supraoculars invariably a single series; in three specimens two incomplete, as well as one complete, rows of small scales between supraoculars and superciliaries, latter usually six in number; the row of postoculars from the posterior border of the subocular to the temporal is irregular, but always two rather strongly keeled scales follow the subocular; the series of scales intercalated between the supraoculars and frontal is continued around the posterior border of the orbit in all specimens; the loreal contacts both canthals in all but one specimen (one side only); the preocular invariably touches the second canthal, but in ten specimens the lower portion is broken off to form an extra scute separating the remainder of the preocular from the rows of scales above supralabials; these latter rows of scales irregular, sometimes but a single scale separating medially the subocular from the supralabials; in all but one specimen one of the rows (apparently the upper one as a rule) is continuous around the snout above the rostral; in this exception the median scale above the rostral is apparently fused with the latter, the anterior pair of internasals thus contacting the rostral; twenty-one specimens have the frontoparietals separated, the frontal and interparietal in contact; the prefrontals and frontonasals are as in the type in all specimens; the internasals and scales about the nasals, however, are too irregular for description of variation, although very frequently (perhaps normally) they are as in the type; character of scales on body and limbs uniform throughout.

The coloration of the males is practically identical with that of the type. A light line, barely visible in the type, passes from the upper labials directly through the ear to the black nuchal collar, passing above the lateral cervical fold; this line is more distinct in the young males, and is bordered above by a narrow black line arising on the posterior margin of the orbit and passing through the extreme upper edge of the ear and thence to the black collar. This line is variable and is most distinct in the young. In ventral coloration there is but little variation. The smallest male (44 mm. snout to vent) has very distinct lateral abdominal areas of blue, but the gular region and breast are white. In a male 54 mm. from snout to vent the gular region is as in the type, but with small scattered white flecks. The breast and median abdominal regions become grayish with increased size.

The females are markedly different from the males in coloration of the back. A light (whitish) line passes from above the insertion of the foreleg along the side of the body to the groin; above this is an irregular black line formed by the fusion of large black spots, which project upward from the black line; the latter arises from the upper margin of the insertion of the foreleg, separated from the black neck collar by the light posterior border of the latter; below the lateral light line is a narrow, indistinct and incomplete black line; on each side of the back is a row of large black spots, about six on each side; the ventral surface of the body, with the exception of the region anterior to the gular fold, is grayish.

Of the other described species of the *torquatus* group, only *j. jarrovii, torquatus, melanogaster, bulleri, serrifer* and *lineolateralis* have the supraoculars large, in a single row. *S. guentheri* may be distinguished by having a much longer fourth toe. *S. serrifer, torquatus* and *melanogaster* have much larger dorsal scales, with the lateral dorsals larger than the median dorsals. *S. j. jarrovii* differs not only in having the dorsal scale rows parallel, but in having the lateral scales larger, much shorter hind legs, different coloration, etc. *S. bulleri* has shorter hind legs, larger scales on the body, a broad neck band and much different ventral coloration.

It is of interest that in at least five of these species (*j. jarrovii, torquatus, melanogaster, serrifer,* and *lineolateralis*) the normal or very frequently occurring condition is for the frontal to contact the interparietal. This condition may occur in *guentheri* (not stated in descriptions), but in most of the forms with two rows of supraoculars it occurs rarely (frequently in *dugesii*).

In body proportions, the narrow nuchal collar, the shape of the tail, and in various relationships of the head scales, *lineolateralis* suggests *formosus.* The nine species of this group (*formosus* Wiegmann, *irazuensis* Günther, *lunaei* Bocourt, *malachiticus* Cope, *salvini* Günther, *schmidti* Jones, *smaragdinus* Bocourt, *taeniocnemis* Cope and *viviparus* Cope) which have been described, are not, however, comparable by description to the species here described, nor has direct comparison with many specimens of the *formosus* group from many localities in Central America and Mexico shown any close relationship to these species with *lineolateralis.*

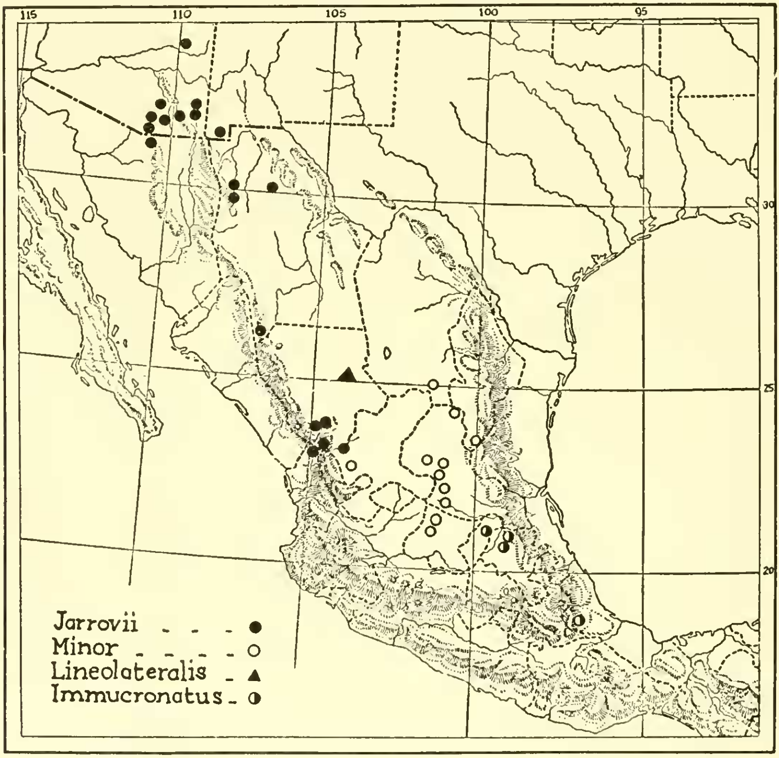

FIG. 17. Distribution of *Sceloporus lineolateralis* Smith, *S. jarrovii jarrovii* Cope, *S. jarrovii minor* (Cope) and *S. jarrovii immucronatus* Smith.

Remarks. In some respects *lineolateralis* resembles *jarrovii,* a species which is closely associated geographically. It is possible

Measurements and Scale Counts of *Sceloporus lineolateralis* Smith

Museum	MCZ	EHT & HMS	MCZ	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	MCZ	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS
Number	6807	4363	6807	4323	4332	4338	4325	4339	6807	4333	4321	4322	4473	4474	4337	4340	4326	4324
Snout to vent	103.0	73.0	72.0	72.0	71.0	69.5	69.5	67.0	65.0	65.0	63.5	63.5	......	58.5	55.0	53.0	51.0	49.0
Tail	......	......	102.0	......	......	......	reg.	reg.	......	111.0	reg.	......	111.5	......	......	......	......	86.0
Snout to occiput	19.0	14.0	14.5	15.0	14.7	14.0	14.5	14.5	13.3	13.5	13.5	13.0	13.0	12.0	11.5	11.0	12.0	11.5
Snout to ear	24.0	17.5	17.5	19.5	19.0	18.0	19.0	18.5	15.5	15.5	17.0	16.5	16.5	15.0	14.0	13.5	14.5	13.8
Hind leg	62.3	48.5	45.0	51.0	49.5	48.0	50.0	48.5	42.0	46.0	46.0	44.9	48.5	42.0	40.0	45.0	39.5	36.0
Tibia	18.5	13.5	13.0	15.0	14.0	14.0	15.5	13.5	11.5	14.5	13.5	12.0	14.0	12.0	12.0	11.0	12.7	10.5
Fourth toe	22.0	17.0	16.4	19.0	18.5	17.0	19.5	18.5	15.9	17.5	16.5	16.7	18.0	16.5	15.5	14.5	15.9	13.0
Fifth toe	12.1	9.0	9.2	11.0	10.0	9.2	10.5	9.5	8.2	9.1	9.0	9.2	9.0	9.1	8.7	7.5	8.5	7.3
Lamellae, fourth toe	21–22	19.0	20–21	21.0	20.0	20.0	20.0	21.0	19–20	19.0	19.0	19.0	20.0	21.0	21.0	19.0	19.0	21.0
Femoral pores	16–17	17–18	16–18	19–19	19–19	16–16	18–19	18–19	17–17	20–?	14–15	17–17	20–20	17–18	19–20	18–?	18–18	19–?
Dorsals	46.0	41.0	47.0	40.0	38.0	43.0	41.0	38.0	43.0	43.0	40.0	42.0	45.0	40.0	44.0	43.0	41.0	45.0
Ventrals	68.0	61.0	63.0	65.0	60.0	61.0	67.0	65.0	61.0	62.0	60.0	59.0	58.0	62.0	65.0	62.0	58.0	64.0
Scales around body	52.0	46.0	51.0	52.0	49.0	47.0	49.0	56.0	50.0	53.0	46.0	53.0	52.0	50.0	49.0	48.0	53.0	54.0
Scales to head length	9.7	8.0	10.3	9.0	8.0	8.0	9.0	8.5	9.0	9.0	8.0	9.0	9.0	8.0	10.0	8.5	10.0	11.5
Ratio hind leg to snout-vent	60.4	66.4	62.5	70.8	69.7	69.0	71.9	72.3	64.6	70.7	73.4	70.7	......	71.7	72.7	84.9	77.4	69.6
Ratio fourth toe to snout-vent	21.3	23.2	22.7	26.3	26.0	24.1	28.0	27.6	24.4	26.9	24.4	26.2	......	28.2	28.1	27.3	31.1	28.5
Sex	♂	♀	♂	♂	♂	♀	♂	♀	♀	♀	♀	♀	♀	♀	♂	♀	♂	♂

that Boulenger's (1897) and Günther's (1890) specimens from Ciudad, Durango, are actually of *lineolateralis* and not of *jarrovii.*

Range. Known only from Durango.

Locality records. Six miles northeast of Pedriceña, Durango (EHT & HMS 4321-6, 4332-4340, 4342-3, 4363, 4372a and b; fourteen miles northeast of Pedriceña, Durango (EHT & HMS 4471-6); Guadelupe, Mexico (MCZ 6807 [3 spec.], Comisión geográfico exploradora).

Sceloporus jarrovii jarrovii Cope

(Text Figs. 17 and 18; Plate XLVII, Fig. 1)

Sceloporus jarrovii Cope, 1875, p. 48; *idem,* 1875, pp. 569-571, pl. 23, 2-2d; Yarrow, 1883, p. 57; Garman, 1884, p. 17; Cope, 1885, pp. 396, 403; *idem,* 1887, p. 38; Van Denburgh, 1896, p. 342; Cope, 1900, pp. 335, 341, 345-347, fig. 49; Stejneger, 1902, p. 150; Stone, 1911, p. 227; Bailey, 1913, p. 34; Van Denburgh and Slevin, 1913, pp. 392, 403; Stejneger and Barbour, 1917, p. 54; Van Denburgh, 1922, pp. 321-326, pl. 26; Stejneger and Barbour, 1923, p. 56; Van Denburgh, 1924, p. 207; King, 1932, p. 177; MacCoy, 1932, pp. 19-21; Stejneger and Barbour, 1933, p. 62.

Sceloporus yarrowi Coues, 1875, p. 595-6, pl. 23, figs. 2-2c.

Sceloporus yarrovii Boulenger, 1885, pp. 223-224; Günther, 1890, pp. XIII, 69; Boulenger, 1897, pp. 483-485 (part); Ditmars, 1907, pp. 129, 135.

Sceloporus torquatus poinsettii Cope, 1900, pp. 350-352 (part).

Type locality. Southern Arizona. Cotypes USNM 8494 (2 spec.) and 8495.

Diagnosis. A *Sceloporus* of the *torquatus* group; dorsal scales, 38 to 46 from occiput to base of tail; dorsal scales denticulate, weakly carinate; largest lateral scales somewhat larger than median dorsals; ratio of hind leg to snout-vent measurement, 54.1 to 65.8; ratio of fourth toe to snout-vent measurement, 18.8 to 25.4; enlarged supraoculars in a single series, bordered laterally by three rows of scales, two or three of which are incomplete; the inner of these three rows is composed of the largest scales; frontal usually in contact with interparietal, or separated by an azygous scale; prefrontals usually in contact; first canthal seldom forced above canthal ridge by contact of second canthal and subnasal; preocular usually not divided; usually two complete rows of scales below subocular. Black nuchal collar three or four scales wide, with a narrow light border sometimes not well defined; a suffusion of black confluent with the collar may occur over the neck and back; a light line two scales broad passes from the nuchal collar to the temporal region; scales on rest of dorsal surface black, with a light spot in the center of each scale.

Description (from K. U. 13145, male). Head scales smooth, strongly pitted in prefrontal and internasal regions; head not strongly depressed; interparietal large, fully four times the size of either parietal; parietal single on each side, subtriangular; frontoparietals single on each side, separated medially by contact of frontal and interparietal; posterior section of frontal about one third smaller than anterior section; prefrontals in contact medially; median frontonasal one third larger than either lateral frontonasal; nostril pierced slightly posterior to middle of nasal scale; anterior part of nasal much narrower than part surrounding naris; nasal and internasals separated from rostral by a row of small scales; scales in internasal region quite irregular; five-six enlarged supraoculars, separated from median head scales by a row of small scales; supraoculars separated from superciliaries by three rows of small scales, one complete and two incomplete; two canthals, the anterior smaller than the posterior; second canthal contacting subnasal on one side; subnasal somewhat larger than loreal; preocular not divided; subocular followed posteriorly by two small, strongly keeled, well-differentiated postoculars; two rows of lorilabials on sides of head, not reduced to one row at any point below subocular; four supralabials and five infralabials to a point below middle of eye.

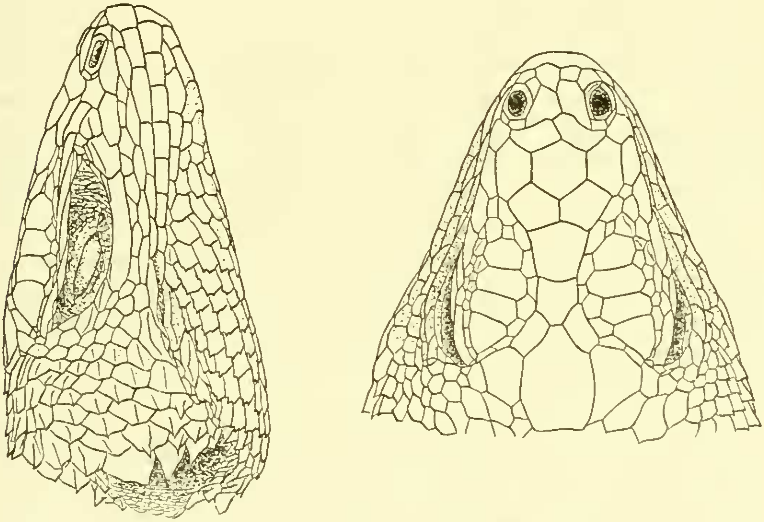

FIG. 18. Head scales of *Sceloporus jarrovii jarrovii* Cope. KU 12371, Montezuma Canyon, Huachuca Mts., Arizona; actual head length, snout to occiput, 17.5 mm.

Mental with a labial border about two thirds that of rostral; mental pentagonal, followed by a series of postmentals, only the anterior two or three of which are well differentiated; scales of anterior pair of postmentals in contact; outer row of labiomentals separated from mental by narrow contact of first infralabial and first postmental; inner row of labiomentals terminating anteriorly at a point below posterior part of second infralabial; gular scales smooth, gradually increasing in size posteriorly; anterior gular scales rounded, not strongly imbricate; posterior gular scales strongly imbricating, with a single apical notch.

Three or four well-differentiated auricular lobules, the upper largest, rounded, the others pointed; scales in temporal region weakly keeled, weakly mucronate (more strongly mucronate near ear), somewhat smaller than largest scales between ear and lateral nuchal fold; scales in latter area keeled and very strongly mucronate; lateral nuchal fold relatively shallow; dorsal scales weakly keeled, weakly mucronate, those on neck and between shoulders without a well-differentiated apical mucrone; dorsal scales denticulate, their posterior edges with a somewhat truncate instead of rounded contour; lateral scales of body more strongly keeled, more strongly mucronate, more denticulate and not truncate; ventral scales slightly more than half the size of median dorsal scales, those on breast equal to or slightly smaller than those in middle of abdomen; preanal scales slightly more than half the size of scales in middle of abdomen; subcaudals smooth at base of tail; postanals enlarged, separated by four small scales; dorsal scales between hind legs somewhat smaller than preceding scales, one third or one fourth as large as scales on base of tail.

Dorsal scales of foreleg mucronate and weakly keeled, those on upper foreleg somewhat larger than those on lower foreleg and slightly smaller than median dorsals; ventral scales of lower foreleg subequal in size to dorsals of same member, smooth, mucronate; ventral scales of upper foreleg smaller than those of lower foreleg, smooth, notched; lamellar formula for fingers 9-13-15-15-12 (8-13-15-15-11).

Dorsal scales of hind leg keeled and mucronate, those on shank as large as or slightly larger than median dorsals on body, and distinctly larger than those on thigh; ventral scales of shank somewhat smaller than dorsals of same member, smooth, mucronate; ventral scales of thigh subequal in size to preanal scales, smooth, notched; scales on posterior surface of thigh somewhat larger than preanal scales, keeled, weakly mucronate, abruptly decreasing in size immediately posterior to femoral pore series; no postfemoral dermal pocket; lamellar formula for toes 8-12-16-19-14 (8-12-17-18-14).

Color. General dorsal ground color black; head reddish-brown, with a light yellow-brown spot on nearly every scale; black nuchal collar three or four scales broad, with a broad median extension about six scales wide from its anterior border to occiput; lateral to this black band a pale-blue line two scales wide, passing from anterior edge of black collar to posterior corner of eye; lateral to this, an indistinct dark band confluent with black collar posteriorly, passing to eye anteriorly; this is followed laterally by pale blue, which color continues on sides of head and neck; black nuchal collar continuous around throat; no distinct light posterior border for collar; each scale on back and sides with a large median pale-blue spot; limbs with narrow, indistinct dark bands; tail dimly banded.

Ventral surface of head pale blue, somewhat darker than sides of head; middle of abdomen cyanine blue, the color extending onto preanal region and ventral surface of femur, becoming somewhat lighter; no light median abdominal band, the blue color of the sides fusing medially and leaving isolated median areas lighter in color; a black patch in groin; a small area in immediate area about anus cream-colored; ventral surface of tail pale blue, with an indefinite suffusion of cream medially.

Variation. The variation in head scales of thirty-six specimens is as follows: The frontal contacts the interparietal in sixteen, and is separated by an azygous scale in eleven, by contact of the two frontoparietals in eight (one specimen injured); the anterior frontal is longitudinally divided in one; the median frontonasal contacts the frontal in five, is separated by an azygous scale in two, and by contact of the prefrontals in twenty-nine; the second canthal touches the subnasal on both sides in six, on one side in seven; the first canthal is always present; the supraoculars are always in a single series, always with a few small scales segmented off the series of enlarged scales, but not approaching the size of the latter; scales between supraoculars and superciliaries in three incomplete rows; row of scales bounding supraoculars medially always complete, the length of each scale about equal to its width; preocular scale separated from the two rows of scales above supralabials in ten (one side only in two); subocular separated from supralabials by two complete rows of scales, occasionally (in nine) reduced to one by one scale; posterior fourth of subocular segmented off on both sides in two, on one side in two; outer row of labiomentals touching mental in two, separated by a partial contact of first infralabial and first postmental in remainder; inner row of labiomentals extends anteriorly to a point even with the suture between the second and third infralabials, never extending farther than the middle of the second infralabial, not beginning farther back than the middle of the third infralabial. The second pair of postmentals contacts medially in one specimen.

The femoral pores vary between thirteen (one specimen, one side) and eighteen, and the dorsal scales from occiput to base of tail are usually forty to forty-six; three specimens from Moctezuma, Chihuahua, have a higher average (47, 48, 52).

Specimens from various localities in the mountains of western Chihuahua have a peculiar variation in color pattern which I have not observed in specimens from other localities. The back and neck are strongly suffused with black, which is continuous with the black nuchal collar. This in turn has lost its light borders medially. Apparently no other differences accompany this color variation. Certain specimens from the same localities have a normal color pattern similar to that found in Arizona specimens. As a general rule the pattern so characteristic of Arizona material, of a light spot on each scale on the back, is usually not evident on Mexican specimens. Stejneger (1902, p. 150), however, remarks that under certain environmental conditions the spotted pattern is not evident even in Arizona specimens.

Habits and habitat. Ecologically, *jarrovii jarrovii* seems to be confined for the most part to areas of high elevation. The three specimens collected near Moctezuma, Chihuahua, are the only ones, so far as I am aware, which have been found at a low elevation. These were found in a semiarid region, on low, barren hills capped by large, granite boulders. They were in company with *S. poinsettii.*

Range. From central Arizona east to western New Mexico, and south through Chihuahua and western Sonora to extreme western Zacatecas and extreme northern Tepic. (See fig. 17 for distributional map.)

Locality records. ARIZONA: *Cochise Co.:* (Yarrow, 1883, Van Denburgh, 1896, 1922; Boulenger, 1897; Cope, 1900; Stejneger, 1902; Stone, 1911; Van Denburgh and Slevin, 1913; K. U. 6885-6919, 7018-7039, 7091-7093, 7311-7336, 7521-7533, 10836, 11840-11872, 12349-12429, 12431-12441). *Pima Co.:* (Van Denburgh, 1922; King, 1932). *Santa Cruz Co.:* (Cope, 1900; Van Denburgh, 1922; MacCoy, 1932; K. U. 13143-13156). *Navajo Co.(?):* (Yarrow, 1883; Cope, 1900). NEW MEXICO: (Bailey, 1913); *Hidalgo Co.:* Animas Peak and Big Hatchet Mts. (Van Denburgh, 1924). SONORA: Pinetos Camp, thirty-two miles south of Nogales (Van Denburgh, 1922). CHIHUAHUA: Ten miles south of Moctezuma (DHD & HMS 98-100); Samachique (FMNH 15723 [6 spec.], 11829-39, Robert M. Zingg); Colonia Garcia (FMNH 1658, C. M. Barber;

USMN 46660-1, Nelson & Goldman; MCZ 7476, C. S. Brimley); Sierra Madre (USNM 47422, 47234-8, Nelson & Goldman); San Luis Mts. (USNM 47015, E. A. Goldman; USNM 21032, E. A. Mearns; Guadelupe (USNM 47066, Nelson and Goldman); Meadow Valley (USNM 26600, Brimley); Madera (MCZ 17526-7, W. W. Brown, 4,400 ft.); Pacheco (MCZ 15610-4, W. W. Brown). DURANGO: Huasamota (USNM 46930, Nelson & Goldman); El Salto (USNM 46638 Nelson & Goldman); Coyotes (FMNH 1511 [19 spec.], Heller & Barber); Cuidad (Boulenger, 1885, 1897; Cope, 1887; Günther, 1890). ZACATECAS: Sierra Madre (USNM 46934, Nelson & Goldman). TEPIC: Santa Teresa (USNM 46630, Nelson & Goldman).

Remarks. A specimen reputed to be from Monclova (probably meant for Coahuila) (MCZ 4557), collected by Palmer in 1880, appears to have incorrect locality data. It was in a jar with a specimen presumably from the same locality, but which possesses a tag stating "San Luis Potosi," and which is typical *jarrovii minor.* The untagged specimen is well preserved and not faded, while the other is shrunken and faded. Until further collecting indicates the presence of *jarrovii* in this region of Coahuila, I assume the locality data to be incorrect.

Six specimens are present in Field Museum (384), collected by E. S. Walton in August, 1897, at Fort Bliss, Arizona (Texas?).

The validity of the report of *jarrovii* from "North of Rio Santiago, Jalisco," cannot be definitely accepted because of the confusion by Boulenger of *dugesii dugesii* and *jarrovii,* and because of the possibility of erroneous locality data. The table of characters given by Boulenger (p. 484) indicates that the specimen *not forming* the type of *pleurolepis* may be *jarrovii,* but the *pleurolepis* type, from the same locality, almost certainly is *dugesii dugesii.* Boulenger has other specimens from Duvall Co., Texas (locality incorrect, or the specimen is *poinsettii*), Catorce, San Luis Potosí (probably *jarrovii minor*), and from La Cumbre de los Arrastrados, Jalisco, Ixtlán, Jalisco, and La Venta, Guadalajara, all of which specimens are very probably *d. dugesii.*

S. jarrovii seems to be most closely related to *d. dugesii.* However, the two forms are sufficiently different that it seems unwise to place them as subspecies until intergradation is definitely established as a fact.

Some of the differences which may be pointed out are: supraoculars entire in *jarrovii,* partly divided in *dugesii;* prefrontals usu-

Measurements and Scale Counts of *Sceloporus jarrovii jarrovii* Cope

Museum	USNM	USNM	DHD & HMS	USNM	DHD & HMS	DHD & HMS	FMNH	USNM	USNM	USNM
Number	47015	46930	99	46934	100	98	1511	47236	46661	47422
Snout to vent	65.0	70.0	72.0	74.0	74.5	77.0	85.0	86.0	88.0	89.0
Tail	74.0	......	......	......	......	......	113.0	......	......	......
Snout to occiput	13.0	14.7	13.0	14.5	13.5	13.5	18.2	17.5	16.0	16.0
Snout to ear	15.8	16.8	17.0	17.5	17.5	17.5	21.9	21.2	21.7	20.0
Hind leg	42.8	44.2	43.5	47.5	42.0	46.0	53.0	52.0	52.8	48.2
Tibia	12.0	14.5	13.0	15.0	14.0	13.5	15.0	16.0	15.8	16.8
Fourth toe	15.2	16.5	16.2	18.6	16.5	16.0	19.8	19.8	19.0	16.8
Fifth toe	8.5	8.8	9.0	10.3	9.2	9.0	11.2	11.3	9.6	10.0
Lamellae, fourth toe	18–19	20–19	17–18	20–20	19–19	18–19	20–20	20–21	19–?	18–19
Femoral pores	15–15	14–16	17–17	15–16	14–15	14–15	17–17	15–16	16–17	14–16
Dorsals	46	43	47	44	52	48	42	38	45	44
Ventrals	61	61	59	68	61	60	65	51	60	59
Scales around body	44	53	48	49	53	50	49	45	42	49
Scales to head length	8.0	9.3	8.0	8.0	10.0	8.0	9.0	7.2	8.7	8.6
Ratio, hind leg to snout-vent	65.8	63.1	60.4	64.1	56.3	59.7	62.3	60.4	60.0	54.1
Ratio, fourth toe to snout-vent	23.3	23.5	22.5	25.1	22.1	20.7	23.2	23.0	21.5	18.8
Sex	♀	♀	♀	♀	♀	♀	♂	♂	♂	♀

ally in contact in *jarrovii*, usually separated in *dugesii;* rows of scales between subocular and supralabials usually reduced to one at some point in *dugesii*, usually two complete rows in *jarrovii;* dorsal head scales smooth (although pitted) in *jarrovii*, rugose (microscopically) in *dugesii;* dorsal scales from occiput to base of tail usually more numerous in *dugesii* (41-50) than in *jarrovii* (40-46 recorded by Van Denburgh [1922], average 43; the three specimens of *jarrovii* from Chihuahua are exceptional and have 48, 47 and 52); femoral pores fewer in *dugesii* (9-13); posterior frontal not reduced in *jarrovii* as in *dugesii*. The light spot in the center of each scale is missing in *dugesii*.

Sceloporus jarrovii minor (Cope)

(Text Figs. 17 and 19; Plate LIII, Fig. 2)

Tropidolepis poinsettii ? Dugès, 1870, p. 243.

Sceloporus torquatus minor Cope, 1885, p. 402; *idem*, 1887, p. 38; *idem*, 1900, pp. 353, 349.

Sceloporus poinsettii ? Dugès, 1887, p. 114; Garman, 1887, p. 14.

Sceloporus yarrovii Boulenger, 1897, pp. 483-485 (part).

Type locality. Zacatecas. Cotypes USNM 26166-7; Dugès, collector.

Diagnosis. A species of moderate size belonging to the *torquatus* group; dorsal head scales smooth; largest lateral scales subequal in size to, or somewhat larger than, dorsals, ventrals much smaller than (about one fourth as large as) dorsals; femoral pore series short, not extending onto preanal region, sometimes with an extra short series; dorsals 34 to 46 from occiput to base of tail; dorsal scales smooth or very weakly keeled, very weakly mucronate, in parallel or very slightly converging rows; tibia as long as or longer than shielded part of head; fourth toe from base of fifth equal to or greater than distance from snout to ear; supraoculars usually in two complete rows, never in one row; black collar continuous around gular region, on dorsal surface of neck very broad, covering from six to eight scale rows; collar with narrow light borders, sometimes interrupted; adults with a ground color of uniform seal brown, with distinct, narrow light bands on distal portion of tail, not encroaching upon ventral surface; males with sides of abdomen from axilla to groin pale blue, sometimes with a purple suffusion, the median edges and area in groin black or marine blue; throat pale blue, sometimes spotted.

Description (EHT & HMS 4207, San Felipe, Guanajuato). Dorsal head shields smooth; enlarged supraoculars in two rows, bordered medially by a single row of small scales, and separated from the superciliaries by one complete and another incomplete row of scales; six superciliaries, the last overlapping the preceding two (the fifth superciliary is entirely overlapped by the fourth); one large, heavily keeled subocular, followed posteriorly by two elongate, heavily keeled postoculars; the series of scales between supraoculars and frontals continued downward, bordering posterior margin of orbit, and contacting the upper (posterior) postocular; preocular scale strongly keeled, in contact with second canthal and with the rows of scales above supralabials; loreal very slightly larger than subnasal, somewhat smaller than preocular, in contact with both canthals; two irregular rows of scales above supralabials and in contact with subocular, preocular, loreal and subnasal, one row continuous around snout above rostral; two canthals, the second with but a very small portion entering the superciliary series; rostral low, at least three times as broad as high; interparietal much larger than either parietal, roughly pentagonal, the posterior edge straight, the sides nearly parallel; a single parietal on each side, but little larger than frontoparietal; a pair of frontoparietals, in contact on median line and separating frontal from interparietal; frontal transversely divided; two prefrontals, in contact on median line; three fronto-

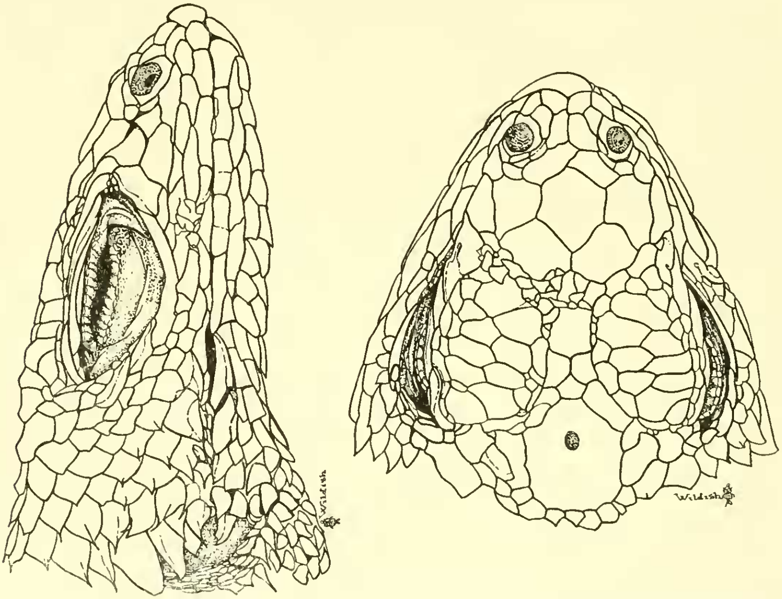

FIG. 19. Head scales of *Sceloporus jarrovii minor* (Cope). EHT & HMS 4207, near San Felipe, Guanajuato; actual head length, snout to occiput, 17.5 mm.

nasals, the lateral in contact with both canthals; two pairs of internasals, the posterior pair somewhat larger than the anterior, the former separated from the first canthal by a small scale; six to seven scales, including the subnasal, surround the nasal; four supra- and five infralabials to a point below the middle of the eye.

Mental pentagonal, its labial border about two thirds that of rostral; mental followed by a series of five or six enlarged scales on each side, the anterior in contact with its fellow on the median ventral line; this series of scales separated from infralabials anteriorly by a single row of elongate scales (except anterior, which is narrowly in contact with anterior infralabial), posteriorly by two rows, the second row beginning below the middle of the third infralabial and in contact with the series of postmental scales; scales in temporal region keeled, mucronate in area near ear; anterior margin of ear with five smooth, pointed scales, the upper two larger than the preceding scales; lateral cervical pouch rather shallow; a fold of skin from about its middle to the lower margin of the ear, surmounted by enlarged, pointed scales; scales adjacent to this fold and gular scales in region of angle of jaws subequal in size; dorsal scales in parallel rows, the scales near the median line very weakly keeled or smooth, rounded or very weakly mucronate; scales on sides very weakly keeled, with one to five weak mucrones; scales between axilla and groin smooth, but with five or seven mucrones; largest dorsal scales on body about half as large as largest dorsal caudals; scales in anterior median part of region in front of gular fold smaller than scales near gular fold; the latter scales but slightly smaller than those near angle of jaw; scales on breast largest of ventrals on body; median abdominal scales somewhat smaller than lateral abdominals.

Dorsal scales of body somewhat larger than those on dorsal surface of upper foreleg, these somewhat larger than those on dorsal surface of lower foreleg; dorsal scales of foreleg weakly keeled and mucronate, those on hand nearly smooth; ventral scales of foreleg smooth, mucronate, those on lower foreleg as large as or larger than the dorsals of the same member, those on upper foreleg much smaller than those on lower foreleg; one dorsal, two lateral and one ventral row of scales around fingers and toes, all continuous to tip except the two laterals, which terminate behind the last scale of the other series; lamellar formula for fingers ?-13-18-17-12 (8-15-18-18-14). Dorsal scales of hind limb keeled, mucronate, those on tibia as large as largest dorsals on body, those on femur somewhat smaller; ventral scales of tibia and femur smooth, rounded, those on tibia somewhat smaller than dorsal scales of same member; scales on anterior surface of femur smooth, large as dorsals of same member; ventral scales of femur, near femoral pores, about equal in size to preanals; scales on posterior surface of femur, immediately behind femoral pores, much smaller than preanals; scales in median area of posterior surface of femur about four times as large as those immediately behind pore series; lamellar formula for toes 10-14-18-20-14 (9-14-20-21-16); a pair of enlarged postanals; subcaudals smooth near proximal end of tail, becoming weakly keeled toward distal end; dorsal caudals more strongly keeled than scales on body, mucronate.

Color. Ground color above uniform olive to Prout's brown; no markings on back or limbs; neck traversed by an extremely broad, black band passing over the shoulder and dimly crossing gular fold region; the band covering seven or eight scales in the median dorsal line; collar light-bordered, the posterior border narrow (one scale wide), the anterior border broader (two or parts of two scales wide); a broad, light band about two scale rows wide between upper edge of ears, separated by a dim, bluish-gray band from the light anterior border of neckband; posterior border of neckband very strongly convex, the median part rather angular, the anterior border straight; head clove to seal brown; sides of belly from axilla to groin pale blue, with a narrow median border of black; a small area in groin black; breast, a median abdominal band about four to six scale rows wide, ventral surface of limbs, preanal region and ventral surfaces of tail whitish; region of gular fold gray; area in front of this gray intermingled with blue, and with small, scattered white flecks.

Variation. The following variation of fifty-four specimens was noted: The frontoparietals contact medially in ten; they are separated by an azygous scale in forty-one, and by contact of the frontal with the interparietal in three. The frontoparietals are divided into two on both sides in four, on one side in three. The anterior frontal is divided longitudinally in ten specimens. The posterior frontal is divided into four scales in one specimen, into three in six, and into two scales in three specimens. An azygous scale separates the prefrontals in three; they are separated by contact of the median frontonasal and the anterior frontal in five; in the remainder they contact medially. These primary head shields vary but little in comparison with *poinsettii;* fusion and irregular segmentation do not frequently occur, and never to the degree common in the latter form.

The supraoculars are almost always in two complete rows; in four or five specimens the outer row is short, composed of but two or three scales. Usually there is not a great difference in the size of the scales in the two rows. There is no irregular segmentation of the scales as is the rule in *cyanogenys* and *immucronatus*. The first canthal is forced above the canthal ridge by contact of the second canthal and subnasal on both sides in six specimens. In two of these it appears that the first canthal may be gone entirely (perhaps fused), but in the others it is obvious that it has been merely pushed up to take a place in the series of small scales about the nostril. The first canthal touches the series of scales above the supralabials on both sides in five specimens, on one side in one. The preocular is separated from these rows of scales on both sides in eight specimens, on one side in ten. The two rows of scales between the subocular and supralabials are reduced to one row at some point on both sides in twenty-nine specimens, on one side in ten.

The medial row of the two rows of scales intercalated between the postmentals and infralabials extends anteriorly to the anterior half of the second labial in one count (two counts per specimen); to the middle of the second in six; to the posterior half of the second in ten; to the suture between the second and third in forty-eight; to the anterior half of the third in thirty-four; to the posterior part of the third in one; and to the suture between the third and fourth in two.

Much variation occurs in the arrangement of the scales between the frontonasals and rostral. There are never more than two pairs of internasals, although one or both pairs of internasals may be broken into two or more smaller scales, or fused together in part. The rows of scales above the rostral and anterior to the first pair of internasals is present in the entire series, with usually four in the series between the middle of the nares (two in one specimen, three in two, five in two and six in one).

The dorsal scale rows are distinctly converging in eleven specimens; in the others they are either parallel or weakly converging (weakly converging is used in description of cases in which a single scale row drops out somewhere on the back, and the other rows show some evidence of converging to accommodate this loss; in some a row may be dropped out, and the scales of the adjacent rows enlarged immediately posterior to this point, with the result that no convergence is apparent).

The basal caudal scutes are from one and one third to two or more times larger than the median dorsals.

The postanal scales are but slightly enlarged in some males; in the young males they are not visibly enlarged. In two male specimens the femoral pore series is double near the median end, increasing the pore count from a maximum of 17 to a maximum of 23 (20-22 in one specimen, 21-23 in the other).

The males vary somewhat in ventral coloration. The throat, anterior to the gular fold region, is usually uniform pale blue. The sides of the belly are also pale blue in some specimens; in older males the black neckband is continued very distinctly across the gular fold region; in the largest the black borders of the lateral blue abdominal areas are expanded and meet on the median ventral line, and some black spotting is present on the preanal region. The light band between the upper margins of the ear are present in all adult males, but is either absent or broken into spots in young males and in females.

The dorsal coloration of the females is much like that of the males. The light band across the neck between the upper margins of the ear is either absent or indicated only by irregular light spots. In most of them the back is uniform, as in the males, but in some there are indistinct dark and light areas scattered over the back. The black spots tend to form in rows, and down each side of the middorsal line, and the light spots border posteriorly each dark spot. In most specimens in which these spots are visible, however, they are quite indistinct and irregular in their disposition. The young specimens are more frequently so spotted than the larger females.

The sides of the belly in the females are grayish; the area anterior to the gular fold region is also grayish, with irregular light spots, or light lines converging toward the middle. The ventral surfaces of the tail, limbs and the preanal region are cream to white.

The tail, which is broken in the type, is Vandyke or seal brown toward the distal end, and has fairly distinct, narrow bands of whitish, usually one scale wide. These bands do not encroach upon the ventral surface of the tail, although the darker color may be visible toward the tip.

Remarks. S. j. minor occupies the northern central plateau region of Mexico, and presumably intergrades with *immucronatus* to the east. All specimens are quite uniform in character except few specimens in a large series from Charcas, San Luis Potosí. In three specimens the dorsal scales from occiput to base of tail are 35-35-34. This represents an extreme, from one locality, much lower than that from any other locality. Thirty-six scales are present in two specimens from San Felipe, and all the remainder have no less than thirty-eight. Another specimen from farther north than Charcas (El

Salado) has characters typical of *minor*, including scale counts, form of supraoculars and general character of other head scales.

The characters which differentiate *minor* and *cyanogenys* may be summarized. In coloration the differences are striking. The black nuchal collar is much broader in *minor*, the light anterior borders are rarely divided (more frequently in the Charcas and El Salado specimens), and the general coloration more brownish and darker.

In scale characters, *minor* has a higher average number of scales from occiput to base of tail; the supraoculars are rarely not in two complete rows in *minor*, and rarely in two rows in *cyanogenys;* the preocular is usually not separated from the rows of scales above the supralabials in *minor*, usually separated in *cyanogenys;* and scales to head length (snout to occiput) fewer in *cyanogenys*.

Cyanogenys also reaches a much greater maximum snout-to-vent length than *minor* (143 mm. in the former, 100.5 in the latter).

Range. Northern parts of the states of Querétaro and Guanajuato, north through western Zacatecas, including most of San Luis Potosí, to southern Coahuila. (See Fig. 17 for distributional map.)

Locality records. Guanajuato: (Cope, 1887); near San Felipe (EHT & HMS 4198-4212, 4228, 4246, 4248-4262); three miles northeast of Santa Rosa (EHT & HMS 3756-3759); near El Terero (EHT & HMS 4276-4278). *Zacatecas:* (Cope. 1885, 1900; USNM 26166-7) (type locality); Valparaiso Mts. (USNM 47868-70, 47816-7, E. A. Goldman). *San Luis Potosí:* (USNM 4557, Palmer); near San Luis Potosí (MCZ 4548 [2 spec.], Dr. Edw. Palmer); Morales (MCZ 20020-5, W. W. Brown); Alvarez (MCZ 20062, 28265-28325 [+45 duplicates], W. W. Brown; UMMZ 67692 [25 spec.], W. W. Brown); Alvarez or Morales (MCZ 4 spec.); Concordia (MCZ 4569 [3 spec.], Dr. Edw. Palmer); Charcas (UMMZ 77275-77282 [71 spec.], C. L. Lundell); Jesus Maria (USNM 47297, 47299, E. W. Nelson); Villar (USNM 47300-1, 47161, E. W. Nelson); Ahualuko (USNM 47298, E. W. Nelson); Santa Inez Mine, Charcas (USNM 17656-9, P. L. Jouy; Cope, 1900); thirty miles north of El Salado (EHT & HMS 4170). *Coahuila:* Sierra Guadelupe (USNM 46700, 46702, 47493-5, Nelson & Goldman). *Nuevo León:* Miquihuana (USNM 46741-2, Nelson & Goldman).

Measurements and Scale Counts of *Sceloporus jarrovii minor* (Cope)

Museum	UMMZ	USNM	EHT & HMS	EHT & HMS	MCZ	EHT & HMS	USNM	USNM	EHT & HMS	USNM	UMMZ	EHT & HMS	UMMZ
Number	77275	47494	4206	3756	4569	3758	26166	47495	4209	47493	77275	4250	77275
Snout to vent	71.0	72.0	72.5	74.5	75.0	75.5	76.0	77.0	78.0	78.5	79.5	80.0	80.0
Tail	....	....	108.0	105.0	....	105.0	....	....	....	....	....	....	....
Snout to occiput	13.0	13.5	13.5	14.0	13.2	13.5	13.4	15.3	14.0	14.0	15.0	14.0	14.0
Snout to ear	16.0	18.5	17.5	17.0	16.7	17.3	17.5	18.1	18.5	18.3	19.0	18.0	17.0
Hind leg	45.0	46.0	49.0	47.5	45.2	48.0	47.7	52.2	49.5	52.5	51.0	49.0	47.2
Tibia	13.0	14.5	14.5	14.0	13.4	14.5	14.6	15.0	14.5	15.2	15.0	15.5	14.0
Fourth toe	15.7	16.3	19.0	19.0	16.3	19.0	16.1	19.8	18.0	18.9	17.7	18.0	16.5
Fifth toe	8.0	8.3	10.0	10.0	8.0	10.0	8.0	9.5	10.0	9.7	9.3	10.0	9.0
Lamellae, fourth toe	19–19	20–20	21–21	19–19	19–20	20–20	21–22	20–20	20–20	19–19	20–21	20–20	19–19
Femoral pores	11–12	15–?	11–11	11–12	13–14	12–12	14–14	14–16	12–14	14–15	11–12	14–14	11–11
Dorsals	37	41	36	39	38	39	40	40	40	42	38	43	35
Ventrals	55	54	55	59	51	59	51	54	59	58	61	59	51
Scales around body	40	43	42	48	40	42	42	43	47	40	41	48	40
Scales to head length	6.7	9.3	7.0	7.5	7.3	8.0	6.8	7.6	7.0	8.0	7.0	8.0	5.0
Ratio, hind leg to snout-vent	63.3	63.8	67.5	63.7	60.2	63.4	62.7	67.7	63.4	66.8	64.1	61.2	59.0
Ratio. fourth toe to snout-vent	22.1	22.6	26.2	25.5	20.7	25.1	21.1	25.7	23.0	24.0	22.2	22.5	20.6
Sex	♀	♂	♀	♀	♀	♀	♀	♂	♀	♂	♂	♀	♀

Measurements and Scale Counts of *Sceloporus jarrovii minor* (Cope)—Concluded

Museum	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	UMMZ	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	USNM	USNM	EHT & HMS
Number	3759	4277	4260	4246	77275	4262	4259	4205	4207	47867	47870	4261
Snout to vent	81.5	83.0	84.5	84.5	88.5	89.0	89.0	90.0	97.0	97.0	100.0	100.5
Tail	....	125.0	127.0	121.0	....	128.0	....	....	....	138.0	....	....
Snout to occiput	15.0	15.0	15.3	14.5	16.0	14.5	16.0	16.5	17.5	18.7	18.3	16.0
Snout to ear	19.0	19.5	19.5	....	21.0	19.0	20.5	21.0	23.0	23.5	22.5	21.0
Hind leg	54.5	55.0	54.5	52.0	54.5	55.0	60.0	59.5	62.5	....	60.0	62.0
Tibia	15.0	17.0	15.0	14.8	16.0	16.0	17.5	18.5	18.5	....	17.5	17.5
Fourth toe	22.0	20.0	20.0	19.0	19.0	19.0	22.0	22.9	22.5	22.7	21.0	22.0
Fifth toe	11.9	11.0	11.1	11.5	10.0	10.9	11.1	13.0	12.0	11.7	10.7	12.0
Lamellae, fourth toe	24–24	23–23	20–20	20–20	18–18	21–21	24–24	21–21	21–21	21–23	21–21	23–23
Femoral pores	12–13	20–22	12–12	21–23	9–10	11–13	12–14	11–12	11–12	15–16	15–16	15–15
Dorsals	43	46	45	42	35	41	46	41	39	40	44	44
Ventrals	67	62	56	61	50	56	61	60	56	62	60	60
Scales around body	50	47	44	48	38	41	49	48	45	52	54	46
Scales to head length	9.0	8.0	8.0	7.0	6.0	6.5	8.7	7.3	7.5	8.8	8.5	7.5
Ratio, hind leg to snout-vent	66.8	66.2	64.4	61.5	61.5	61.7	67.4	66.1	64.3	....	60.0	61.3
Ratio, fourth toe to snout-vent	26.9	24.0	23.6	22.4	21.4	21.3	24.7	25.4	23.1	23.4	21.0	21.8
Sex	♂	♂	♂	♂	♂	♀	♂	♂	♂	♂	♂	♂

Sceloporus jarrovii immucronatus Smith

(Text Figs. 17 and 20; Plate LIII, Fig. 1)

Sceloporus torquatus poinsettii ? Boulenger, 1885, p. 220 (part); ? *idem,* 1897, p. 481 (part).

Sceloporus jarrovii immucronatus Smith, 1936a, pp. 223-227.

Type locality. Ten miles north of El Pinalito, Hidalgo, Mexico. Holotype EHT & HMS 500; paratypes EHT & HMS 498-9, 501-4, 506-8, 510-1, 605-615; E. H. Taylor and H. M. Smith, collectors.

Diagnosis. A species of moderate size belonging to the *torquatus* group; head shields smooth; laterals in diagonal rows, weakly keeled, very weakly mucronate; the median laterals somewhat larger than, to one and one half times as large as, median dorsals; dorsals in parallel longitudinal rows, very weakly keeled, but slightly mucronate, 37 to 46 from occiput to base of tail; supraoculars usually in two rows, the inner complete, the outer incomplete; canthals regularly two; tibia as long as or slightly longer than shielded part of head; fourth toe from base of fifth slightly longer than distance from snout to posterior margin of ear; ratio of fourth toe to snout-vent measurement, 23.8 to 28.6 (in adults); ratio of hind leg to snout-vent measurement, 64.0 to 71.3; femoral pores, 12-19; ground color, cobalt blue; collar black, complete, narrow (2 or 3 scales wide), extending across gular fold region in males; region anterior to gular fold and sides of belly cobalt blue; ventral surfaces of limbs and tail glaucous blue or pale blue; median ventral surface of belly in old males black, the color extending onto proximal portion of ventral surfaces of limbs.

Description of type. Dorsal head shields smooth; enlarged supraoculars in two rows, the outer row formed of scales about one half as large as those of inner row; supraoculars separated from superciliaries by one complete and another incomplete row of scales (the latter present on one side only), and bordered medially by a series of small scales; superciliaries six, the last overlapping the preceding two (the fifth superciliary is entirely overlapped by the fourth); one large, heavily keeled subocular, followed posteriorly by two small, strongly keeled postoculars, these in turn followed by a series of scales passing upward and contacting the parietal; the series of scales between the supraoculars and frontals continued downward between the former series of scales and the margin of the orbit, terminating at about the middle of the posterior postocular; preocular scale strongly keeled, in contact with second canthal and with the rows of scales above supralabials; first canthal in contact with rows of scales above supralabials, separating the loreal from the preocular; about three fifths of the length of the second canthal forming a part of the superciliary series; rostral about three times as broad as high; two irregular rows of scales above supralabials and in contact with subocular, preocular and subnasal, one row continuous around snout above rostral; interparietal much larger than either parietal, more triangular than pentagonal in shape; a pair of frontoparietals, separated on the median line by the contact of frontal and interparietal; frontal transversely divided; two prefrontals, in contact on median line; three frontoparietals, the lateral in contact with both canthals; three pairs of small internasals, the posterior largest, the anterior smallest; a single small scale, not entering into series surrounding nasal, separates the posterior internasal from the first canthal; five scales, including the subnasal, surround the nasal; four supra- and five infralabials to a point below the middle of the eye.

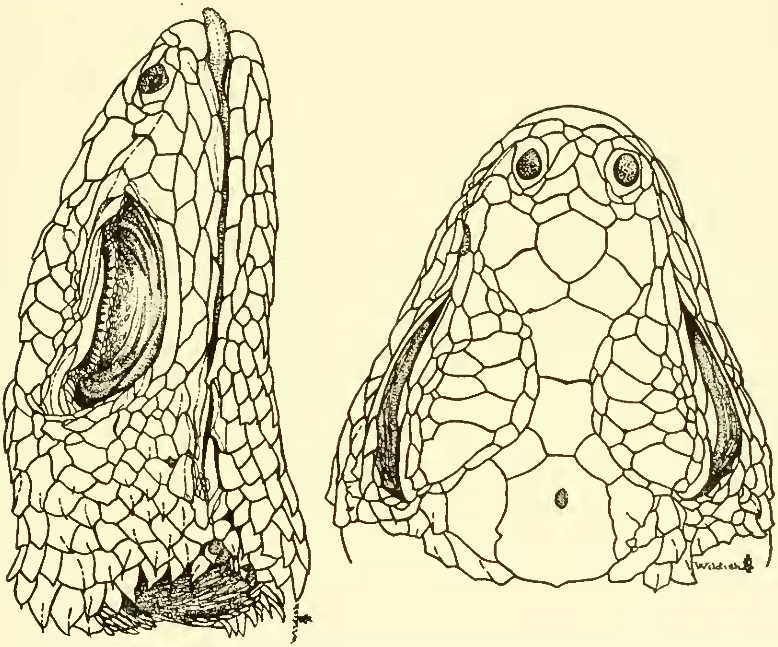
FIG. 20. Head scales of *Sceloporus jarrovii immucronatus* Smith. EHT & HMS 500, El Pinalito, Hidalgo; actual head length, snout to occiput, 16.5 mm.

Mental rather U-shaped, its labial border almost equal to that of rostral; mental followed by a series of five or six enlarged scales on each side, the anterior in contact with its fellow on the median ventral line; this series of scales separated from infralabials anteriorly by a single row of elongate scales (except anterior scale, which is in contact with the first infralabial), posteriorly by two rows, the second row beginning below the junction of the second and third infralabials and in contact with the series of postmental scales; scales in temporal region keeled, mucronate in area near ear; anterior margin of ear with five smooth, pointed scales, on one side the upper two much larger than the others, on the other side all five approximately equal in size, the upper two but little larger than the others and smaller than the preceding scales (subequal on one side); lateral cervical pouch present, a fold from about its middle to lower margin of ear; this fold surmounted by scales more strongly mucronate than those adjacent and somewhat smaller than those in region near angle of jaw; dorsal scales in parallel or weakly converging rows, very weakly keeled, weakly mucronate; lateral scales more strongly keeled and mucronate, somewhat smaller than dorsals and in diagonal rows; laterals with as many as seven mucrones; dorsal scales a little more than half as large as largest caudals; ventrals relatively large, about one half the size of dorsals; breast scales no larger than those in median abdominal area; ventral scales in anterior region, near chin, smaller than gular scales nearer gular fold region; the latter scales as large as those in region near angle of jaw; median gular scales about as large as abdominals; preanals about as large as gulars; ventrals emarginate.

Scales on dorsal surface of upper foreleg somewhat smaller than those on back, those on dorsal surface of lower foreleg considerably smaller; all dorsal scales of arm, except hand, keeled and mucronate; ventral scales of lower forearm somewhat smaller than dorsals of the same member, those on ventral surfaces of upper forearm much smaller; all ventral scales of arm, except hand, smooth; one dorsal, two lateral, and one ventral row of scales around fingers and toes, all continuous to tip except the two laterals, which terminate behind the last scale of the other series; lamellar formula for fingers 9-13-18-19-14; dorsal scales of hind limbs keeled, mucronate, less so on foot; dorsals of tibia of about the same size as dorsals on body, those on femur somewhat smaller; ventral scales of hind limb, except foot, smooth; ventrals of tibia somewhat smaller than dorsal scales of the same member; scales on anterior surface of femur smooth, becoming progressively smaller toward the femoral pore series; scales immediately anterior to femoral pore series somewhat smaller than preanals; scales on posterior surface of femur keeled, mucronate, smallest near femoral pores, and becoming progressively larger toward dorsal surface; scales immediately posterior to femoral pore series about one third to one half as large as those immediately anterior to pore series; lamellar formula for toes 9-14-20-23-16; a pair of distinctly enlarged postanals; caudals strongly keeled and mucronate except those on ventral surfaces.

Color. General dorsal ground color cobalt blue of varying degrees of brilliance; this color uniform, without markings, over dorsal surfaces of tail, limbs and back as far forward as neck. A narrow black neckband is present, two or three scales wide, bordered behind and in front by relatively broad pale-blue bands about two scales wide; the black collar passes onto shoulder, widens there somewhat, then becomes narrow and is complete across the gular region. The dorsal surface of the neck and head anterior to the nuchal collar is darker blue (berlin or indigo blue), with irregular pale-blue spots. A broad pale-blue band begins on the rostral and passes over the supralabials, including the subocular, broadens in the temporal region and passes through the ear, covering the entire opening. This band unites with the light anterior border of the nuchal collar. The area anterior to the gular fold is uniform ultramarine blue; a broad central band down the belly is grayish, with very dark-blue edges, which in turn border on lateral lighter blue areas of slightly darker blue than the dorsal ground color. The ventral surfaces of the limbs are light blue, a narrow edge of each scale usually white; the ventral surface of the tail is pale blue, with a suffusion of white in some areas.

Variation. The outer row of enlarged supraoculars (the smaller of the two rows) is frequently fused in part with the inner row, but never is there but a single row. The outer row is formed of scales of varying sizes, sometimes almost as large as the scales of the inner row, sometimes much smaller. In four specimens the frontal is in contact with the interparietal; in one the two frontoparietals are in contact; in the remainder of the series a single, small, median scale separates the frontal from the interparietal; of the specimens with the latter arrangement, there are three in which the posterior section of the frontal is divided transversely, and the posterior scale of these two is divided longitudinally. In all paratypes the loreal is in contact with the subnasal, the first canthal never (except in holotype) contacting the series of small scales above the supraoculars; the preocular is separated from these latter series of scales in seven specimens; the first canthal is always distinct, never confined to the area above the canthal ridge. The posterior pair of internasals is in contact with the first canthal in three specimens; there are three pairs of internasals, as in the type, in only three paratypes; in nine others there are two distinct pairs, and in the remainder of the series the scales are irregular. The median frontonasal contacts the frontal in one specimen, and is separated from the frontal in another specimen by a small scale intercalated between the two prefrontals.

The two rows of scales between the subocular and superior labials are reduced to one at one point on both sides in nine specimens, on one side in four. The medial of the two rows of scales intercalated between the postmentals and inferior labials extends anteriorly to the anterior half of the second infralabial in one count (two counts per specimen); to the middle of the second in one; to the posterior half of the second in five; to the suture between the second and third in fourteen; to the anterior half of the third in nineteen; to the middle of the third in one; to the suture between the third and fourth in four; and to the anterior half of the fifth in one.

The dorsal scale rows are distinctly converging in seven specimens. In the remainder they are either parallel or very slightly converging (one row dropping out).

The dorsal coloration of the males is almost identical with that of the holotype. The light borders of the nuchal collar are in some specimens broken; the posterior border may be broken medially, and the anterior may be broken into a series of large light spots. The general bluish coloration of the throat is hardly developed in small specimens, but distinct in those about 70 mm. from snout to vent and larger. The blue of the sides of the belly is continuous with the dorsal and lateral ground color. The neckband is complete around the gular fold region in specimens 70 mm. from snout to vent and larger.

The dorsal coloration of the females is essentially like that of the males. The ground color, however, is grayish instead of blue, and there are present in all but the largest specimens indistinct black spots scattered over the dorsal and lateral surfaces of the body. They are larger on either side of the middorsal line and tend to form two longitudinal rows. The tail is indistinctly banded. The ventral coloration is light, sometimes suffused with bluish in the lateral abdominal regions.

The most characteristic feature of the coloration is the brilliant blue ground color, which is varied only with black. The blue is less distinct in females than in males, but even in these blue forms an essential element of the coloration.

Remarks. S. j. immucronatus is most closely related to *cyanogenys* and *minor*. No specimens have been examined which show intergradation with either, however, and it is rather difficult to determine from which it has been derived. I have concluded for the present that *immucronatus* is derived from *minor.* Geographical association points toward such a conclusion, as well as general form, maximum size, character of the preocular and average scale count from occiput to base of tail. It conforms more closely to *cyanogenys* in color, character of the supraoculars and number of femoral pores.

Summarizing the points of distinction between *minor* and *immucronatus,* the following may be mentioned: Ratio of hind leg to snout-vent measurement greater in *immucronatus* (64.0 to 71.3, average 66.0 in the latter; in *minor,* 61.2 to 67.5, average 63.4); supraoculars irregular in *immucronatus* (as in *cyanogenys*); femoral pores usually more numerous (rarely more than 14 in *minor,* rarely less in *immucronatus*); enlarged postanals present and well developed in males of *immucronatus,* variable in *minor.* In color *immucronatus* differs by having a distinctly narrower black nuchal collar, a general ground color of blue, and much black in the ventral coloration of males.

From *cyanogenys, immucronatus* differs in possessing a larger number of scales from occiput to base of tail (37 to 46 in *immucronatus,* 32 to 40 in *cyanogenys*), preocular usually not divided (usually divided in *cyanogenys*), ratio of hind leg to snout-vent measurement greater (58.6 to 66.9, average 64.6), and lesser maximum size (86.0 mm. snout to vent in *immucronatus,* 143 mm. *in cyanogenys*). In color, the males of *immucronatus* differ by having much black in the ventral coloration; *cyanogenys* does not.

Habits and habitat. The specimens from Hidalgo were collected on granite rocks on the crest of the plateau edge. The males, with their brilliant blue coloration, were conspicuous from a considerable distance.

A number of very young specimens were collected with the adults, and it is assumed from this that *immucronatus* is ovoviviparous, as are other members of the *torquatus* group.

Range. Western Querétaro through Hidalgo to southern central Vera Cruz. (See fig. 17 for distributional map.)

Locality records. El Pinalito, Hidalgo (EHT & HMS 498-504, 506-508, 510-511); twenty-five miles south of Jacala, Hidalgo (EHT & HMS 605-615); Presidio, north of Montzorongo, Vera Cruz (MCZ 21093, W. W. Brown); Pinal de Amoles, Querétaro (USNM 47776, Nelson & Goldman).

Measurements and Scale Counts of *Sceloporus jarrovii immucronatus* Smith

Museum	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	MCZ	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS
Number	498	500	499	605	21093	606	502	607	508	506	501	507	609	503	511	610
Snout to vent	87.0	86.0	84.5	78.0	77.0	75.0	75.0	75.0	74.5	72.0	71.5	68.0	67.5	66.0	61.5	60.0
Tail	143.0	126.0	......	......	......	......	......	reg.	reg.	......	......	......	......	101.0	96.0	90.0
Snout to occiput	16.0	16.5	......	14.0	13.6	14.0	14.5	14.0	13.8	13.0	14.6	13.0	12.7	12.5	12.0	12.0
Snout to ear	20.5	20.0	......	17.8	18.0	18.5	18.5	17.5	17.5	16.0	17.5	16.0	15.8	15.5	15.0	14.5
Hind leg	58.0	56.5	57.5	52.0	......	50.0	48.0	49.5	48.0	50.0	51.0	44.5	45.0	45.5	40.5	42.0
Tibia	17.0	17.0	16.5	15.8	14.9	15.8	14.5	14.5	13.9	15.0	14.5	13.0	13.0	13.5	12.0	12.0
Fourth toe	21.0	21.0	21.0	19.0	17.9	19.0	19.0	18.4	18.3	17.5	20.5	17.9	17.0	17.0	16.0	15.0
Fifth toe	11.2	11.8	12.0	10.2	9.1	10.0	10.5	10.1	10.4	9.5	11.0	8.7	9.3	8.9	9.2	8.7
Lamellae, fourth toe	23	23	21	20	19–19	20	20	21	20	22	23	20	19	21	22	20
Femoral pores	16–17	12–14	14–14	12–12	14–14	15–17	16–16	15–16	17–17	17–17	16–?	15–?	16–16	17–20	15–17	15–16
Dorsals	43	43	41	43	43	40	46	43	42	45	42	40	40	43	40	39
Ventrals	62	54	51	60	55	53	58	54	55	57	63	56	48	60	56	52
Scales around body	53	44	48	43	47	43	45	42	45	47	50	45	41	48	45	43
Scales to head length	9.0	9.0	10.0	8.0	7.0	7.5	9.5	8.0	7.5	7.0	10.0	8.0	7.5	8.0	8.0	8.0
Ratio, hind leg to snout-vent	66.6	65.6	68.0	66.6	......	66.6	64.0	65.7	64.4	69.4	71.3	65.4	66.6	68.9	65.8	70.0
Ratio, fourth toe to snout-vent	24.1	24.4	24.8	24.3	23.2	25.3	25.3	24.5	24.5	24.3	28.6	26.3	25.1	25.7	26.0	25.0
Sex	♂	♂	♂	♂	♀	♂	♂	♂	♀	♀	♂	♀	♀	♀	♀	♀

Sceloporus ornatus ornatus Baird

(Text Figs. 21 and 22; Plate LIV, Fig. 1)

Sceloporus ornatus Baird, 1859, p. 254; *idem,* 1859a, pp. 5-6; Müller, 1865, p. 602; Cope, 1875, p. 48; Yarrow, 1883, p. 57; Garman, 1884, p. 17; Boulenger, 1885, p. 224; Cope, 1885, p. 403; *idem,* 1887, p. 38; Boulenger, 1890, p. 78; Günther, 1890, pp. xii, 72; Boulenger, 1897, pp. 485-486; Cope, 1900, pp. 335, 340, 344-345, Fig. 48; Strecker, 1915, pp. 19-20; Stejneger, 1916, pp. 227, 228.

Type locality. Patos, Coahuila. Holotype USNM 2845, Lt. B. Couch, collector.

Diagnosis. A member of the *torquatus* group; dorsal scales 55 to 63 from occiput to base of tail; supraoculars quite irregular or in two rows; posterior section of frontal reduced in size, broken in small scales or absent; lorilabials usually reduced to one row below subocular; two canthals, normal in position; inner row of labiomentals terminating below third infralabial; femoral pores 16 to 20 (rarely 14 or 15); ratio of hind leg to snout-vent measurement, 61.4 to 65.5; ratio of fourth toe to snout-vent measurement, 20.2 to 24.4; tibia longer than snout-occiput measurement; length of fourth toe usually somewhat less than snout-ear measurement. Neckband narrow, four to seven scales wide, with narrow light borders two scales wide; back dimly banded; throat uniform white in females, pale blue in males, without darker markings; males with sides of belly, from axilla to groin, caerulean blue, bordered medially by a hyacinth blue line; the blue area on the sides of the belly are separated by eight to twelve scale rows.

Description (from EHT & HMS 4420, male). Head and body strongly depressed; scales of head pitted, the scales in prefrontal and internasal region more strongly; cephalic scales smooth; interparietal pentagonal, four times as large as either parietal; parietals single on either side, subtriangular; frontoparietals single on either side, rectangular, about two fifths the size of parietal; frontoparietals separated medially by an azygous scale; posterior section of frontal split irregularly into three scales; prefrontals as large as lateral frontonasals, in contact medially; frontonasals approximately equal in size; internasals irregular, separated from rostral by a single row of small scales; nasal small, subcircular, separated from rostral; supraoculars irregularly divided, small; a row of scales separating supraoculars from median head scales, and one complete and another incomplete row between supraoculars and superciliaries; two canthals, the first smaller than the second, second canthal not in contact with subnasal; first canthal not touching lorilabials; loreal rectangular, somewhat larger than subnasal, preocular completely divided on one side, partially on the other; subocular followed by three small, well-differentiated, keeled postoculars; lorilabials in two complete rows below subocular, reduced to one at a narrow point on one side; three and one half supralabials and four and one half infralabials to a point below middle of eye.

Mental with a labial border about two thirds that of rostral; mental pentagonal, followed by several pairs of postmentals, the anterior two pairs well differentiated, and the scales of the anterior pair in contact; outer row of labiomentals separated from mental by partial contact of first postmental and first infralabial; gular scales smooth, rounded except in extreme posterior part of the gular region, where they are weakly notched; gular scales smallest in middle of throat, largest toward angle of jaws.

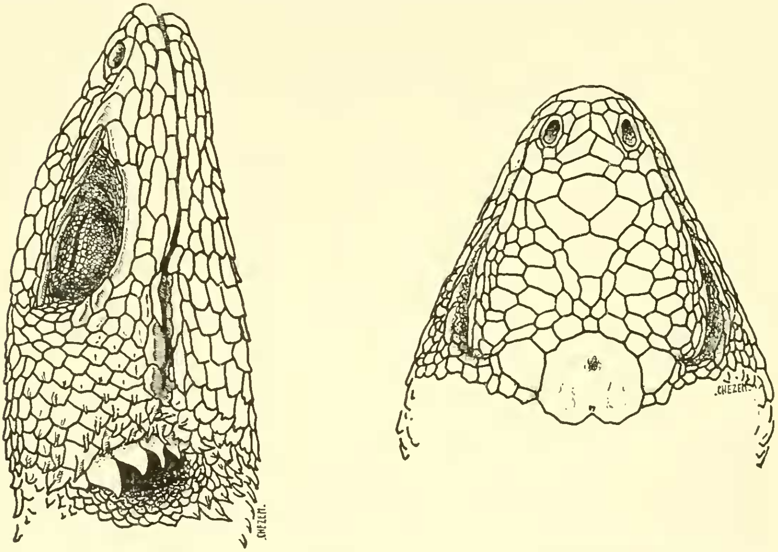

FIG. 21. Head scales of *Sceloporus ornatus ornatus* Baird. EHT & HMS 4422, near Saltillo, Coahuila; actual head length, snout to occiput, 12 mm.

Three or four auricular lobules, smooth, the lower one or two pointed, the upper two rounded and nearly twice as large as preceding scales; temporal scales very weakly keeled and very weakly mucronate, becoming more strongly keeled and mucronate toward ear; temporal scales subequal in size to scales between ear and lateral nuchal fold; a fold of skin between upper edge of lateral nuchal fold and lower edge of ear, surmounted by strongly keeled, very strongly mucronate scales; nuchal fold or pouch moderately deep; dorsal scales not or but very weakly keeled, not or but very weakly mucronate, not denticulate; lateral scales keeled, mucronate, weakly denticulate, the largest slightly larger than median dorsal scales; ventral scales smooth, rounded, about two thirds the size of median dorsal scales; ventral scales on chest slightly larger than median ventral abdominals; scales in preanal and interfemoral regions slightly smaller than preceding scales; postanal scales enlarged, separated by two small scales; subcaudals smooth except toward tip of tail; dorsal caudals near base of tail about twice as large as median dorsals on body.

Dorsal scales of foreleg as large as or larger than median dorsals on body, those on upper foreleg somewhat larger than those on lower foreleg, all keeled and mucronate; scales on anteroventral surface of lower foreleg smooth, rounded or weakly mucronate, somewhat smaller than dorsal scales of same member; scales on posteroventral surface of lower foreleg somewhat larger, keeled, mucronate; ventral scales of upper foreleg smooth, rounded, about one third size of dorsals of same member; scales in axilla not granular; lamellar formula for fingers, 8-12-16-16-12 (7-12-16-16-13).

Dorsal scales of thigh about as large as median dorsals of body, keeled, mucronate; dorsal scales of shank nearly twice as large as median dorsals on body, keeled, strongly mucronate; ventral scales of shank about two thirds size of dorsal scales of same member, smooth, rounded; scales on ventral surface of femur near series of femoral pores subequal in size to preanal scales, smooth, rounded or weakly notched; scales on posterior surface of femur somewhat larger than preanal scales, keeled, mucronate, abruptly decreasing in size toward series of femoral pores; no postfemoral dermal pocket; lamellar formula for toes, 8-12-19-20-15 (8-12-18-20-15).

Color. The dorsal coloration is practically identical in all. A very distinct black band crosses the neck and passes onto the shoulder. It is four to seven scales long on the median dorsal line, and is bordered on both sides by a broad light line, covering about two scale rows, of a whitish or iridescent pale-blue color, sometimes with a tinge of orange laterally. Both light lines may be complete or either one or both broken on the median line. The area between the neck band and frontal region, as well as the temporal region, is variously marked; in some females no markings are present there, while in males this area is spotted with whitish or iridescent pale blue, sometimes forming an indistinct light band across the neck. The back is sepia in females, more or less black in males. About seven indistinct, broken, narrow light bands traverse the back, disappearing on the sides, which are lighter in color than the median dorsal area. The sides are usually pale blue, suffused to a varying degree with orange, but in some females are brownish, somewhat lighter than the back. In some males the lighter color of the sides encroaches on the median darker area, resulting in a pattern of a series of paired dark spots down the middle of the back. The tail is dimly barred with usually rather narrow, light bands alternating with much broader dark bands.

In males, the throat and gular regions are pale blue; the sides of the belly, from axilla to groin, are caerulean blue, bordered medially by a hyacinth blue line; the blue areas on the sides of the belly are separated by eight to twelve scale rows.

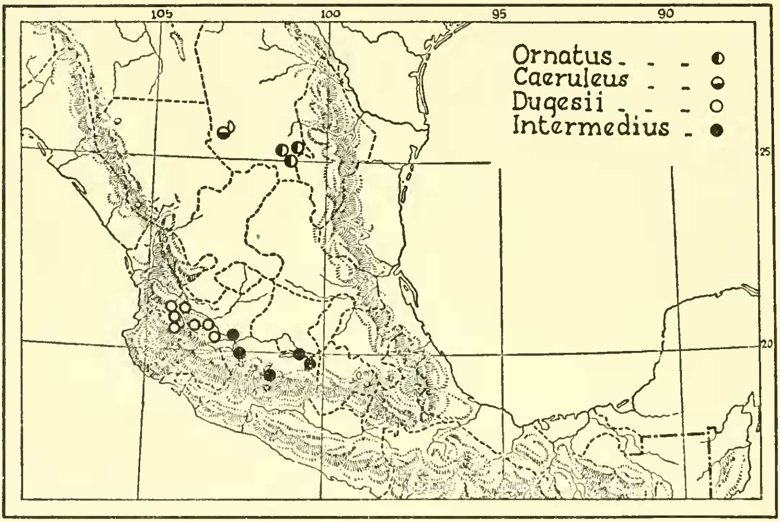

FIG. 22. Distribution of *Sceloporus ornatus ornatus* Baird, *S. o. caeruleus* Smith, *S. dugesii dugesii* Bocourt and *S. d. intermedius* (Dugès).

Variation. Only eight specimens have been available for a study of variation. Parietal one fourth to one fifth size of interparietal; frontoparietal divided on both sides in one, on one side in two; frontal never touches interparietal; frontoparietals contact medially in two; an azygous scale separates frontoparietals in six; frontal variously divided, normally divided in two specimens; supraoculars divided in all; prefrontals contact in all; canthals 2-2 in all, normal in relationship to other scales; preocular divided on both sides in two, on one side in one; scales below subocular not reduced to one row at a point below subocular on one side in one specimen; outer labiomental row separated from mental in all; inner row of labiomentals terminating at a point even with the anterior half of third infralabial (middle of third infralabial on one side of one and on both sides of another).

Auricular lobules three to five, usually the latter number, the upper three lobules largest; femoral pores 16 to 20 (14-15 in one specimen); dorsals from occiput to base of tail 55 to 63.

Remarks. The species is apparently confined to semiarid localities. The specimens collected near Saltillo were found by Edward H. Taylor near the crest of a high hill at the north edge of the city.

Range. Known only from southeastern Coahuila.

Locality records. Coahuila: Patos (USNM 2845; Lt. Couch); near Saltillo (EHT & HMS 4300, 4418-4422, 4598); four to five miles north of Gomez Farias (EHT & HMS 4301); Jaral (FMNH 1548, Heller & Barber). Published records are available from Redmond's Pass, Texas (Cope, 1900); Nuevo León (Boulenger, 1890, 1897; Günther, 1890); Duvall Co., Texas (Boulenger, 1897). Stejneger (1916) states that the records from the latter two localities are based upon *Sceloporus disparilis.* Cope's specimen cannot now be found. Garman (1884) gives the locality "Sonora"—undoubtedly incorrect.

Measurements and Scale Counts of *Sceloporus ornatus ornatus* Baird

Museum	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	EHT & HMS	USNM
Number	4422	4598	4420	4421	4418	2845
Snout to vent	63.5	67.0	72.5	73.5	74.0	82.5
Tail	....	82+	109.0	....	....	....
Snout to occiput	12.0	12.0	13.2	13.5	13.0	15.2
Snout to ear	16.0	16.0	18.0	17.5	17.0	19.4
Hind leg	?	43.0	47.5	....	43.0	51.4
Tibia	?	13.0	16.2	....	14.0	16.5
Fourth toe	15.2	15.0	17.0	18.0	15.0	17.6
Fifth toe	7.2	7.6	8.7	9.2	8.2	9.6
Lamellae, fourth toe	20–19	18–19	19–19	19–18	19–19	20–20
Femoral pores	16–16	16–17	18–19	20–19	17–18	15–17
Dorsals	56	55	63	55	58	60
Ventrals	60	65	72	74	70	76
Scales around body	54	57	57	54	57	61
Scales to head length	10.5	9.5	13.0	11.0	10.5	11.0
Ratio, hind leg to snout-vent	....	64.1	65.5	....	61.4	62.4
Ratio, fourth toe to snout-vent	23.9	22.3	23.4	24.4	20.2	21.3
Sex	♀	♀	♂	♂	♀	♂

Sceloporus ornatus caeruleus Smith

(Text Figs. 22 and 23; Plate LIV, Fig. 2)

Sceloporus ornatus caeruleus Smith, 1936a, pp. 227-230.

Type locality. Five miles south of San Pedro, Coahuila, Mexico. Holotype DHD & HMS 350; paratypes DHD & HMS 348-9, 351-361; David H. Dunkle and H. M. Smith, collectors.

Diagnosis. A member of the *torquatus* group of *Sceloporus*; dorsal scales, 47 to 53 from occiput to base of tail; posterior section of frontal reduced or variously divided; supraoculars in two rows, the scales of the outer row somewhat smaller than those of the inner row; lorilabials reduced to one row at a point below subocular; two canthals, normal in position; inner row of labiomentals terminating below third infralabial; femoral pores 12 to 17 (average 13.7); ratio of hind leg to snout-vent measurement, 66.6 to 74.5; ratio of fourth toe to snout-vent mesaurement 22.7 to 27.4; length of tibia greater than snout-occiput measurement; length of fourth toe usually slightly greater than snout-ear measurement, sometimes equal or slightly less. General ground color bluish; nuchal collar four to six scales wide, light bordered; ventral surfaces of males entirely blue, without darker markings; a series of about seven dark blotches more or less evident on middle of back.

Description of holotype. Head and body somewhat compressed; scales of head not rugose or keeled; scales in prefrontal, frontonasal and internasal regions rather strongly pitted; a few pits on other head scales; parietals single on either side, subtriangular, about one third size of interparietal; interparietal pentagonal, the posterior edge rounded and confluent with posterior edges of parietals; frontoparietals small, square, separated medially by a small azygous scale; another small scale between frontal and right frontoparietal; posterior section of frontal slightly less than one third size of anterior section; prefrontals in contact medially, but slightly smaller than anterior section of frontal; lateral frontonasals subequal in size to prefrontals; median frontonasal somewhat larger; scales in internasal region irregular; nasal small, the anterior border about nostril somewhat wider than posterior border; nasal separated from rostral; supraoculars in two rows, the scales of the outer row about half as large as scales of inner row; one complete and another incomplete row of scales between supraoculars and superciliaries; one row of rather broad scales between supraoculars and median head scales; six superciliaries, the fifth entirely concealed by the fourth, which is abnormally divided into two; two canthals, normal in position, the first somewhat smaller than the second; subnasal smaller than loreal, which is very long and narrow; preocular not divided; subocular followed by two small, well-differentiated, strongly keeled postoculars; lorilabials reduced to one row by two scales below subocular.

Mental subtriangular (tending toward pentagonal), with a lateral border slightly more than one half that of rostral; mental followed by about four pairs of postmentals; scales of first pair of postmentals in contact medially; outer row of labiomentals separated from mental by partial contact of first postmental and first infralabial; inner row of labiomentals terminating at a point even with anterior half of third infralabial; median gular scales about one third smaller than lateral gular scales; scales in anterior part of gular area with a terminal pit, those in extreme posterior part of gular area notched.

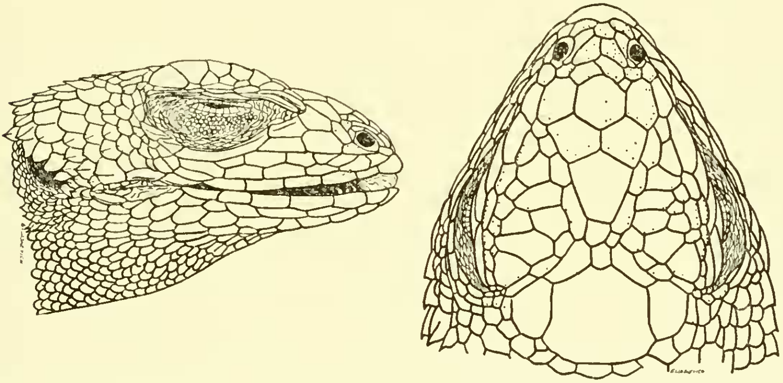

FIG. 23. Head scales of *Sceloporus ornatus caeruleus* Smith. DHD & HMS 355, five miles south of San Pedro, Coahuila; actual head length, snout to occiput, 11.5 mm.

Auricular lobules three or four, distorted on one side; on the other side the median two are much larger than the outer two, rounded, not keeled, subequal in size to scales in temporal region; scales between ear and lateral nuchal fold one third or one fourth the size of scales in temporal region; latter scales keeled, denticulate, mucronate; a weak skin fold between upper edge of lateral nuchal pocket and lower edge of ear, surmounted by small, very strongly keeled and mucronate scales; median dorsal scales smooth, sometimes rounded, usually with one or two terminal pits or denticulations, rarely with a terminal mucrone; lateral scales somewhat smaller than median dorsal scales, keeled, mucronate, denticulate, with terminal pits; median abdominal scales about one third to one half the size of median dorsal scales, somewhat larger than preanal scales; scales on chest slightly larger than those in middle of belly; scales on abdomen and on chest smooth, rounded; enlarged postanals present, separated by two scales; subcaudals smooth except toward extreme tip of tail; dorsal caudal scales near base of tail slightly larger than median dorsals on body.

Dorsal scales of foreleg somewhat smaller than dorsal scales on body, keeled, mucronate, with terminal denticulations and pits; scales on lower foreleg somewhat smaller than those on upper; ventral scales of foreleg smooth, notched or with terminal pits, those on lower foreleg somewhat smaller than dorsal scales of same member; ventral scales on upper foreleg about half as large as ventral scales of lower foreleg; lamellar formula for fingers, 10-14-17-18-13 (9-14-18-18-13).

Dorsal scales of hind leg keeled, mucronate, denticulate and with terminal pits; dorsal scales of tibia somewhat larger than dorsals on body, those on femur slightly smaller; ventral scales of hind leg smooth, rounded or notched; ventral scales of shank slightly smaller than dorsal scales of the same member; ventral scales in front of femoral pore series subequal in size to preanal scales, gradually increasing in size toward anterior face of femur; scales on posterior surface of femur strongly keeled, strongly mucronate, slightly larger than preanal scales, abruptly decreasing in size immediately posterior to femoral pore series; no postfemoral dermal pocket; lamellar formula for toes 7-13-17-20-16 (7-13-18-20-16).

Color. General dorsal color pale blue, with a greenish suffusion; a series of large black blotches, about six in number, of indefinite outline, on middle of back, separated from each other by one row of light scales; nuchal collar four scales wide, with light anterior and posterior borders about two scales wide; posterior light border extending onto proximal end of forearm; anterior border terminating on sides of neck slightly above and posterior to lateral nuchal fold; a light bar across neck between ear and foreleg, terminating on sides of neck about at a level with upper edge of ear; an indistinct, broken light line across neck between upper edges of ear; a few light-colored scales in temporal region; limbs dimly banded.

Black nuchal collar continuous about neck; a suffusion of black in groin, extending somewhat on ventral surface between groins; entire ventral surfaces of other parts, including head, limbs and tail, bluish; the sides of the belly, lower surfaces of hind limbs, median gular area and basal region of tail grey smalt blue; lower surfaces of forelegs and distal part of tail suffused with pale blue; median anterior abdominal and anterior gular regions suffused with iridescent apple green; ventral surfaces of hands and feet white.

Variation. The dorsal coloration of all paratypes is much as in the holotype. In females the general ground color is less brilliant. The ventral coloration of the males is much as in the holotype. In younger males the ventral surface of the tail, hind limbs and an indistinct, narrow median area in middle of abdomen are whitish. Females are whitish below, without dark markings, sometimes with a general light suffusion of pale blue.

The parietals are from one third to one sixth the size of the interparietal; the frontoparietals are divided on one side in one, on both sides in another (in the latter specimen, the posterior part of each divided frontonasal is fused with the interparietal); the frontal touches the interparietal in two; the frontoparietals contact medially in one; an azygous scale lies between the frontoparietals in nine; the posterior section of the frontal is divided into two scales in five specimens; in one the posterior section is absent; in seven the frontal is normally divided, the posterior part always considerably smaller than the anterior; the supraoculars are always in two rows, the scales of the outer row smaller than those of the inner; the row of scales separating the supraoculars from the median scales is always composed of broad, not elongate, scales; all supraoculars separated from median head scales; prefrontals in contact in all; invariably two canthals, normal in position and relationships with other scales; preocular divided in eight; lorilabials reduced to one row at a point below subocular in all; outer row of labiomentals terminating below anterior half of third infralabial in all but two; in one of these it terminates below the posterior half of the third, in the other it terminates below the anterior half of the fourth.

Auricular lobules three to five, usually with two much larger than the others; dorsal scales 47 to 53, average 49.7; femoral pores 12 to 17, average 13.7. Other characters of scalation approximately as in holotype. Variations in proportions and certain scale characters are given in the accompanying table.

Habits. Specimens of this subspecies were found on large rocks on the north exposure of a range of low, arid hills a short distance north of the road from Torreón to Saltillo, about five miles south and slightly east of San Pedro. Peculiarly enough, the species was not found on a somewhat higher range of hills a short distance south of the road; it is possible that it was not sufficiently warm when Mr. Dunkle and I collected there. It was about 11:00 a. m. when the lizards were encountered in relative abundance. They were extremely wary, and could be collected successfully only by sighting

Measurements and Scale Counts of *Sceloporus ornatus caeruleus*—Smith

Number	360	361	359	351	349	348	355	354	353	350
Snout to vent	50.2	54.5	57.5	59.0	59.0	62.5	63.0	66.0	66.5	75.0
Tail	81.0	....	....	....	100.0	....	....	....	....	....
Snout to occiput	10.3	11.0	12.0	12.5	12.0	12.0	11.5	12.6	12.5	14.0
Snout to ear	13.0	14.0	15.0	16.0	15.0	16.0	15.0	16.2	16.5	17.5
Hind leg	34.5	39.5	38.5	44.0	44.0	42.0	42.5	44.0	47.0	50.0
Tibia	11.0	12.2	12.5	13.0	12.8	12.0	13.0	13.5	13.0	15.0
Fourth toe	13.0	14.3	15.5	16.2	15.8	15.9	15.5	15.0	17.0	17.0
Fifth toe	6.8	7.4	8.1	8.0	8.6	8.2	8.2	7.7	9.0	9.4
Lamellae, fourth toe	19–19	19–20	19–18	19–18	20–21	22–20	23–23	19–19	21–21	20–20
Femoral pores	13–14	14–17	12–13	14–16	14–16	12–14	15–16	13–13	12–13	13–13
Dorsals	52.0	47.0	51.0	51.0	47.0	51.0	53.0	53.0	48.0	48.0
Ventrals	67.0	60.0	63.0	66.0	59.0	58.0	62.0	67.0	61.0	59.0
Scales around body	55.0	47.0	52.0	53.0	50.0	47.0	46.0	54.0	48.0	49.0
Scales to head length	11.0	11.0	11.0	12.0	11.0	9.5	9.5	10.0	10.0	9.5
Ratio, hind leg to snout-vent	68.7	72.4	66.9	74.5	74.5	67.2	67.4	66.6	70.6	66.6
Ratio, fourth toe to snout-vent	25.8	26.2	26.9	27.4	26.7	25.4	24.6	22.7	25.5	23.3
Sex	♀	♀	♂	♂	♂	♀	♀	♂	♂	♂

them at a considerable distance and then approaching as cautiously as possible. The brilliant ventral coloration of the males was very conspicuous as they protruded their heads and breasts above the edges of rocks.

Range. Known only from the type locality. (See fig. 22 for distributional map.)

Sceloporus dugesii dugesii Bocourt

(Text Figs. 22 and 24; Plate LV, Fig. 1)

Sceloporus dugesii Bocourt, 1874, pp. 188-190, pl. 18, figs. 7, 7a, 7b; Garman, 1884, p. 18; Boulenger, 1885, pp. 224-225; Günther, 1890, p. 71.

Sceloporus pleurolepis Günther, 1890, pp. xii, 74-75, pl. 32, fig. B.

Sceloporus yarrovii Günther, 1890, pp. xii, 69 (part); Boulenger, 1897, pp. 483-385 (part).

Type locality. Colima.

Diagnosis. A member of the *torquatus* group of the genus *Sceloporus;* dorsal scales, 41 to 50 from occiput to base of tail; lateral scales considerably larger than median dorsal scales, in oblique rows, and each with an apical mucrone arising within the free margin of the scale; ratio of hind leg to snout-vent measurement, 52.5 to 61.7; ratio of fourth toe to snout-vent measurement, 17.4 to 24.1; fourth toe shorter than distance from snout to posterior border of ear; femoral pores, 9 to 13; head scales rugose (microscopically); posterior section of frontal reduced; supraoculars in two irregular rows; frontoparietals rarely in contact medially; black nuchal collar narrow, three or four scales wide, with a light posterior border not over a scale wide, passing onto shoulder; anterior light border of collar absent or indistinct; a dim, dark line from eye through upper part of ear to collar, bordered above and below by a narrower light line; back uniform gray or with indistinct darker spots; throat not conspicuously barred. Maximum snout-to-vent measurement, 87.5 mm.

Description (from EHT & HMS No. 2759, male). Head and body flattened; head scales rugose and pitted; a single rounded parietal on each side; interparietal pentagonal, about three and one half times as large as either parietal; a single frontoparietal on each side, rectangular, about two thirds as large as either parietal; frontal touching interparietal, separating frontoparietals medially; posterior section of frontal about two fifths the size of anterior section; prefrontals slightly more than half the size of anterior section of frontal, separated medially by narrow contact of frontal and median frontonasal; latter separated on each side from lateral frontonasals by a small, elongate scale; a pair of rather large scales preceding median frontonasal, in turn preceded by a pair of large internasals separated from rostral by a pair of small, narrow scales; supraoculars six or seven, divided, separated from median head scales by a row of small scales, from superciliaries by one complete and another incomplete row of scales; nasal small, separated from rostral, the portion anterior to naris strongly tapered but much broader than part posterior to naris; subnasal present, moderate in size; a single loreal on each side, about equal in size to subnasal; preocular large, not divided; two canthals, the first not forced above canthal ridge nor contacting lorilabials; subocular normal, followed posteriorly by two well-differentiated, strongly keeled postoculars; rows of lorilabials reduced to one at a point below subocular; about four infra- and supralabials to a point below middle of eye.

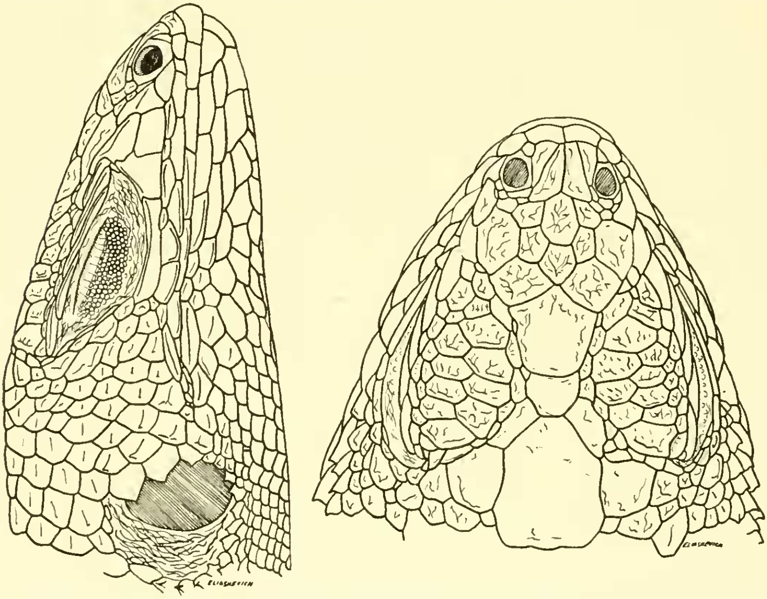

FIG. 24. Head scales of *Sceloporus dugesii dugesii* Bocourt. EHT & HMS 2761, near Magdalena, Jalisco; actual head length, snout to occiput, 15.7 mm.

Mental pentagonal, with a labial border about two thirds that of rostral; about three pairs of well-differentiated postmentals, the scales of the anterior pair in contact medially; outer row of labiomental scales narrowly separated from mental by partial contact of first infralabial and first postmental; inner row of labiomental scales terminating anteriorly below the posterior part of second infralabial; gular scales smooth, rounded except in extreme posterior part of gular region, where they have a single, small, apical notch.

Three or four auricular lobules, the upper ones smooth and rounded, the lower ones acuminate, all smaller than preceding scales; temporal scales keeled, not mucronate; scales between ear and lateral nuchal fold somewhat larger than in temporal region, keeled and strongly mucronate; lateral nuchal fold strongly oblique; dorsal scales weakly keeled, not mucronate; lateral scales in oblique rows, nearly twice as large as median dorsals, keeled, rather strongly mucronate, with the apical mucrone of each arising within the free edge of the scale; ventral scales rounded or very weakly notched, about one third the size of median dorsals; preanal scales as large as or slightly larger than median ventral abdominals; scales between hind legs about half the size of preanals; scales on anterior part of chest slightly larger than the scales posterior; subcaudals smooth except toward tip of tail; postanals enlarged, separated by a pair of small scales; dorsal caudals near base of tail about twice as large as median dorsals on body.

Dorsal scales of foreleg subequal in size, about equal to dorsals on body, keeled, weakly mucronate; ventral scales of foreleg very weakly keeled or smooth, weakly mucronate, those on lower foreleg about one third larger than those on humerus and somewhat smaller than dorsals of foreleg; lamellar formula for toes, 8-12-16-17-12 (9-13-17-16-11).

Dorsal scales of hind limb keeled, strongly mucronate, those on femur subequal in size to dorsals on body and somewhat smaller than those on tibia; ventral scales of hind leg smooth, rounded, those on tibia about one half size of dorsals of same member; scales preceding femoral pore series smaller than preanals; scales on posterior surface of femur about three times as large as preanals, strongly keeled, strongly mucronate, abruptly decreasing in size immediately behind femoral pore series; scales on posterior surface of femur near insertion surrounded and separated slightly from each other by granules; no postfemoral dermal pocket; lamellar formula for toes, 8-12-16-21-13 (9-11-16-19-14).

Color. Dorsal ground color brown-gray; black nuchal collar narrow, about three scales wide, darker posteriorly and merging with ground color anteriorly; collar with a light, narrow, posterior border about one scale wide, passing onto humerus; a few irregular dark and light markings on neck; a dark line about one scale wide from posterior edge of orbit through upper part of ear to nuchal collar; this line bordered above and below by a light line about one scale wide; back uniform, without markings; a faint dark line from a point above axilla to groin; below this line, sides of body darker;

limbs uniform or very dimly banded; tail with narrow, very dim bands toward tip; throat cobalt blue, lighter anteriorly; chest cream, blue encroaching a short distance on the sides anteriorly; sides of belly azure blue laterally, cobalt blue medially, bordered internally by a black band three or four scales broad, terminating anteriorly a short distance from axilla, and posteriorly involving the region of the groin and encroaching a short distance upon anterior proximal surface of femur; ventral surfaces of limbs, tail and middle of belly cream, immaculate.

Variation. Variation in essential scale characters of the body and in measurements is given in the accompanying table. The variation of the head scales is as follows: Enlarged supraoculars always divided, the scales of the inner row larger than those of the outer row, which is usually incomplete; supraoculars always separated from the median scutes by at least a single series of small scales, frequently by another incomplete series also; one frontoparietal divided in one specimen, both divided in two; posterior frontal contacting interparietal in thirteen specimens, separated by an azygous scale in fourteen, and separated by contact of frontoparietals in four; posterior frontal transversely divided in four specimens, broken into small scales (three or four) in four; anterior frontal one and one half to three and one half times as large as posterior frontal; median frontonasal contacting frontal in ten specimens, separated by an azygous scale in thirteen, and by contact of the two prefrontals in twelve; second canthal contacts subnasal, forcing first canthal above the canthal ridge, on both sides in three specimens, and on one side in three; two complete rows of scales separating subocular from superior labials on both sides in seven specimens, and on one side in two; lateral row of the two rows of scales intercalated between infralabials and postmentals separated from the mental by a partial contact of first postmental and first infralabial in all but one specimen; inner of these two rows terminated under second sublabial on both sides in ten specimens, on one side in three, under the third labial on both sides in five, on one side in three, under the suture between the second and third sublabial on both sides in fifteen, on one side in four.

The dorsal head scales are usually distinctly although not strongly rugose, both in young and in old specimens. Occasional specimens have this rugosity confined to the internasal region and the scales about the supraorbitals.

The coloration is more or less as given by Bocourt (1874). The neckband is narrow, three or four scales wide at the widest point. The two rows of spots down the back, one on each side of the mid-dorsal line, are not regularly present, nor are the spots on the sides usually present. Usually no spotting whatsoever is visible on the back. In one specimen the spots on the sides are arranged in longitudinal series, not in oblique series diverging posteriorly. Some specimens have very light-brown spots scattered over the dorsum. The lateral ventral abdominal areas of males are azure to cobalt blue, bordered internally from opposite the axilla to the groin by a black band some four scales wide. A median whitish abdominal area is six scales wide at the narrowest point; the throat is largely cobalt blue, with some lighter areas sometimes visible as oblique lines. The females are whitish beneath, with irregular blue markings on the throat; sometimes these markings are arranged in oblique lines converging posteriorly.

Habits and habitat. Specimens of this species were collected in Nayarit and Jalisco on rock fences. Some were collected as early as June 10, and at this time the newly born young were running about the fences. It is assumed that the form is ovoviviparous.

Remarks. Boulenger's specimens of *Sceloporus dugesii* described in his monograph of 1897 are not *dugesii dugesii,* but *dugesii intermedius.* However, it appears very probable that the specimens he included with *jarrovii* from north of Rio de Santiago, Jalisco (except one); La Cumbre de los Arrastrados, Jalisco; Ixtlán, Jalisco; and from La Venta, Guadalajara, are all *dugesii dugesii.* Günther's type of *pleurolepis* is in this series. The description of *jarrovii* given by Boulenger, thus considered, is a composite and not descriptive of either species alone. In the table, however, are given a number of rather illuminating data. The femoral pores are fewer in the southern specimens, the fourth toe shorter, the tibia shorter and the snout-ear measurement shorter—all points of difference between *jarrovii* and *dugesii dugesii.* Günther's description of *pleurolepis,* moreover, is entirely applicable to *dugesii dugesii*—much less to *jarrovii.* The very large lateral scales, which he stresses, are much larger in *dugesii dugesii* than in *jarrovii.* Aside from the shape of the frontal, the depiction of which may not necessarily be accurate, the figures accompanying the description of *pleurolepis* illustrates well enough the form *dugesii dugesii.* The femoral pores are 12 in *pleurolepis,* never less than 13 in *jarrovii,* but 9 to 13 in *dugesii*

Measurements and Scale Counts of *Sceloporus dugesii dugesii* Bocourt

Number	2764	2807	2812	2760	2833	2768	2770	2772	2809	2818	2806	2759	2823	2822	2761
Snout to vent	64.8	65.0	70.7	72.0	72.5	79.0	79.0	82.0	82.0	82.0	83.5	83.5	84.0	87.0	87.5
Tail	......	......	......	96.5	......	......	......	......	......	......	120.0	......	......	......	......
Snout to occiput	13.0	13.5	13.5	13.0	13.0	15.0	15.0	15.6	15.5	15.3	15.3	15.0	15.0	15.2	15.7
Snout to ear	17.0	16.5	16.8	17.0	15.5	18.0	19.0	18.5	19.0	19.5	18.0	18.0	19.0	20.0	19.0
Hind leg	40.0	41.0	41.0	41.0	40.5	43.0	45.0	46.5	46.0	50.0	48.5	50.3	47.5	48.1	46.0
Tibia	13.0	13.0	12.9	12.0	11.9	13.9	13.0	14.4	13.5	14.8	15.0	15.3	14.5	14.0	14.0
Fourth toe	14.2	15.7	14.0	15.0	14.1	......	15.0	16.0	16.0	17.4	16.9	17.3	17.0	17.1	15.3
Fifth toe	8.0	8.0	7.5	8.1	7.2	8.5	8.0	9.0	9.0	9.7	8.5	10.1	8.7	9.3	8.6
Lamellae, fourth toe	18–18	19–19	18–18	16–17	16–18	19–?	18–18	17–18	18–18	18–18	17–17	19–19	17–17	18–18	18–17
Femoral pores	11–11	9–?	11–12	11–10	11–9	11–10	11–?	13–10	10–10	13–?	11–11	12–?	11–11	13–12	9–10
Dorsals	46	48	46	43	50	45	41	46	48	47	49	43	50	50	44
Ventrals	62	72	69	61	65	68	62	67	61	74	70	66	75	72	61
Scales around body	48	56	52	44	49	48	44	46	52	55	56	46	53	55	45
Scales to head length	8.6	10.0	7.5	7.7	8.0	8.0	7.5	8.3	8.0	8.0	9.5	7.3	9.0	9.2	6.5
Ratio, hind leg to snout-vent	61.7	63.0	57.9	56.9	55.8	54.4	56.9	56.7	56.0	60.9	58.0	60.0	56.5	55.2	52.5
Ratio, fourth toe to snout-vent	21.9	24.1	19.8	20.8	19.4	......	19.0	19.5	19.5	21.2	20.2	20.7	20.2	19.6	17.4
Sex	♀	♂	♀	♀	♀	♀	♂	♀	♂	♂	♂	♂	♂	♂	♀

dugesii; and the supraoculars are not divided, or are not so nearly equally divided in *jarrovii* as in *dugesii.*

The single specimen of Boulenger's *jarrovii* from Rio Santiago which does not form the type of *pleurolepis* appears actually to be *jarrovii,* judging from the data given in his table. If the locality is correct, then *jarrovii* and *dugesii* overlap each other in their distribution.

In the agglomeration of Boulenger's table for *jarrovii* are also two specimens from San Luis Potosi which have the characters of *minor,* and another from Duvall county, Texas, which has the characters of *poinsettii.*

Range. Along the coastal ranges of western Mexico from southern Nayarit to Colima. (See fig. 22 for distributional map.)

Locality records. Jalisco: near Magdalena (EHT & HMS 2758-2772); near La Quemada (EHT & HMS 2806-2824); near Chapala (EHT & HMS 2833); north of Rio Santiago (type locality of *pleurolepis*) (Günther, 1890; Boulenger, 1897); La Venta, Guadalajara (Boulenger, 1897); Itzatlan (USNM 47887-90, Nelson and Goldman); Jacala (USNM 64658-60, Nelson and Goldman); west of Orendain (AMNH 18454, Paul D. R. Rüthling); El Aguilar Mine, Hostotipaquillo (AMNH 15493, Paul D. R. Rüthling). *Colima:* (Bocourt, 1874; Garman, 1884) (type locality of *dugesii*). *Nayarit:* Ixtlán (Boulenger, 1897).

Sceloporus dugesii intermedius (Dugès)

(Text Figs. 22 and 25; Plate LV, Fig. 2)

Tropidolepis intermedius Dugès, 1870, p. 243 (nomen nudum).

Sceloporus intermedius Dugès, 1877, pp. 29-34, pl. 1, figs. 21-32; Günther, 1890, p. 71.

Sceloporus dugesii (non Bocourt) Cope, 1879, p. 265; *idem,* 1885, p. 403; *idem,* 1887, p. 38; Dugès, 1896, p. 479; Boulenger, 1897, p. 486; *idem,* 1898, p. 915; Cope, 1900, pp. 336, 341-343; ? Werner, 1903, p. 344.

Type locality. Noria, near Zamora, hacienda of D. Epifanio Jimenez (Michoacán).

Diagnosis. A member of the *torquatus* group of the genus *Sceloporus;* dorsal scales, 47 to 54 from occiput to base of tail; femoral pores, 10 to 15; fourth toe shorter than (rarely about equal to) distance from snout to posterior border of ear; ratio of hind leg to snout-vent measurement, 54.7 to 61.1; ratio of fourth toe to snout-vent measurement, 19.5 to 22.1; lateral scales in oblique rows, the median laterals distinctly larger than median dorsals, and with terminal mucrones arising within free edge of scales; head scales not rugose; frontoparietals usually in contact; posterior section of frontal reduced; supraoculars in two rows; a series of dark spots down back on either side of middorsal line, with a dark line extending obliquely posteriorly from each; black nuchal collar narrow, about three scales wide, with a narrow, light, posterior border; anterior light border indistinct; throat with distinct, oblique, blue bars; sides of abdomen blue, bordered medially by a broad band of black; middle of belly and chest cream; black nuchal collar not confluent on ventral surface; ventral surfaces of limbs and tail cream. Maximum snout-vent measurement, 79 mm.

Description (from EHT & HMS No. 3690, male). Head somewhat depressed; dorsal and lateral head scales with numerous pits, otherwise smooth; a small, rounded parietal on each side; interparietal about four times as large as either parietal; frontoparietals single on each side, rectangular, about two thirds size of parietal, broadly in contact medially; frontal normally divided, the posterior section slightly less than half the area of the anterior section; prefrontals in contact medially; median frontonasal as large as anterior section of frontal, wedged between the two prefrontals; lateral frontonasals about one third the size of median frontonasal, in contact with the latter and both canthals; four internasals, the posterior pair in contact with median frontonasal, the anterior pair separated from rostral by a row of small scales; nasal small, separated from rostral, the part anterior to the nostril about one fourth the diameter of naris; subnasal small; loreal elongate, subequal in

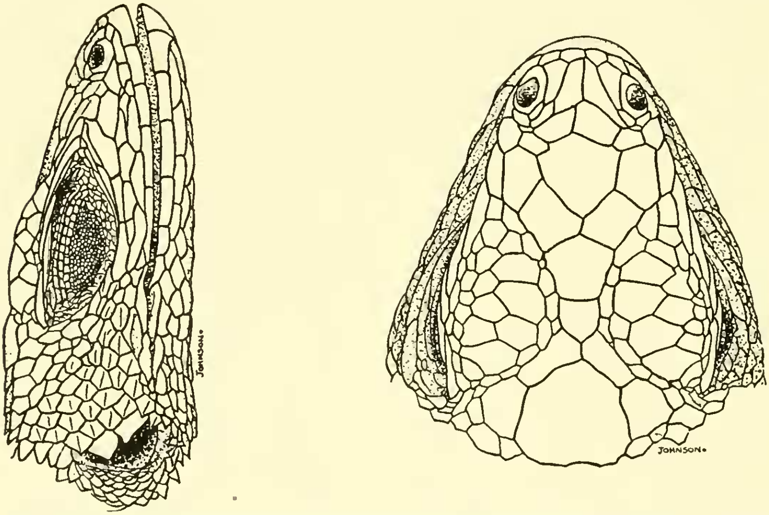

FIG. 25. Head scales of *Sceloporus dugesii intermedius* (Dugès). EHT & HMS 3690, near Acámbaro, Guanajuato; actual head length, snout to occiput, 11.5 mm.

size to subnasal; preocular large, entire; two canthals, the anterior smaller, not forced above canthal ridge nor in contact with lorilabials; subocular followed by one well-differentiated, strongly keeled postocular; supraocular scales in two rows, the scales of the median row somewhat larger than those of the lateral row; one row of small scales between supraoculars and median head scales; one complete row, and another incomplete row on one side, of scales between supraoculars and superciliaries; lorilabials reduced to one row at a point below subocular near its posterior end; four supra- and five infralabials to a point below middle of eye.

Mental with a labial border about two thirds that of rostral, followed by about three pairs of well-differentiated postmentals, the scales of the anterior pair in contact medially; outer row of labiomental scales narrowly separated from mental by a narrow contact of first postmental and first infralabial; inner row of labiomentals terminating below anterior half of third infralabial; gular scales smooth, mostly entire, those on posterior part of throat weakly notched at apex.

Three auricular lobules, smooth, rounded, the upper longest, the middle largest, somewhat larger than preceding scales; scales in temporal region weakly keeled, weakly mucronate; scales between ear and lateral nuchal fold somewhat larger than temporal scales, those on crest of nuchal fold rather strongly keeled and mucronate; lateral nuchal fold not extremely deep; dorsal scales very weakly keeled, not mucronate; lateral scales of body more strongly keeled and mucronate, with numerous lateral denticulations; mucrones of lateral scales not arising at tip of scale, but a short distance within the free margin, leaving a denticulate flange about the posterior edge of the scale; lateral scales considerably larger than dorsals, in oblique rows; ventral scales about half as large as dorsals, smooth, rounded or very weakly notched at apex; preanal scales somewhat smaller than median ventral abdominals; scales on anterior part of chest larger than scales posterior; subcaudals smooth at base of tail, keeled and mucronate distally; postanals enlarged, separated by two small scales; dorsal caudals largest just back of base of tail, about twice as large as median dorsals on back.

Dorsal scales of foreleg subequal in size, those on humerus somewhat larger and about equal in size to median dorsals of body; dorsal scales of foreleg keeled, mucronate, the mucrones arising within the edge of the scale; ventral scales of foreleg keeled and mucronate (except some on lower foreleg), those on lower foreleg equal in size to dorsals of same member, about two or three times as large as scales on ventral surface of humerus; lamellar formula for fingers, 9-12-16-16-13 (?-11-16-16-?).

Dorsal scales of hind leg strongly keeled, strongly mucronate (more so on tibia), those on femur about equal in size to those on middle of back, those on tibia much larger, slightly larger than median lateral scales on body; ventral scales on tibia smooth, mucronate, about two thirds as large as dorsals of same member; ventral scales of femur smooth, rounded or weakly notched at apex, smaller toward femoral pores, the smallest about equal in size to preanals; scales on posterior surface of femur keeled, mucronate, somewhat larger than preanals, abruptly decreasing in size immediately posterior to series of femoral pores; scales on posterior surface of femur near tail surrounded and separated slightly from each other by granular scales; no postfemoral dermal pocket; lamellar formula for toes, 8-12-17-18-14 (7-12-17-18-14).

Color. General ground color brownish-gray to light brown (pale blue in specimens having shed the scales); black nuchal collar narrow, three or four scales wide, with a narrow, posterior light border, about one scale wide, interrupted medially; light posterior border passing onto humerus, with the part on body narrowly bordered posteriorly with black; light anterior border of black collar broken into spots; an indistinct light line from upper labial region through upper portion of ear across neck to black nuchal collar; a few light flecks on neck anterior to collar; a series of seven small, rounded black spots of indefinite outline on each side of middorsal line, the spots not regularly paired; about an equal number of narrow dark bands on sides of body, one or two scales wide, passing obliquely laterally and posteriorly, each originating at or near one of the dark spots on back; a few scattered light flecks on back; limbs dimly barred or spotted with black or dark gray; tail distinctly banded, the dark bands about two scales wide, the light bands about one; each band darker distally than proximally.

Throat with a pale blue ground color, becoming white near chin; several narrow, oblique, dark blue lines on throat converging posteriorly; extreme anterior part of chest with two bands encroaching medially a short distance from the sides; chest, a narrow band down middle of abdomen four to six scales wide, ventral surfaces of limbs and tail cream; sides of belly azure blue, bordered medially by a broad black band about five scales wide; this black band abruptly terminating a short distance posterior to axilla, slightly increasing in width in region of groin, encroaching slightly upon anterior proximal surface of femur.

Variation. The variation in head scales is as follows: The supraoculars are always in two rows, or one row and part of another. Occasionally there is but a single scale divided. The frontoparietals contact medially in thirty; an azygous scale separates them in four; and the frontal contacts the interparietal in nineteen. The frontal is transversely divided into three scales in three; the anterior frontal is longitudinally divided in two. The posterior portion of the frontal is always smaller than the anterior, varying from two thirds to one fourth the size of the latter. The frontoparietals are divided into two scales on one side in two specimens. The median frontonasal contacts the anterior frontal in twenty-five; it is separated by an azygous scale in one; the prefrontals contact medially in twenty-seven. The first canthal touches the rows of scales above the supralabials in three specimens; the preocular is separated from these rows in three; the second canthal contacts the subnasal, forcing the first canthal above the canthal ridge, on both sides in sixteen, on one side in six. The lateral row of the two rows of scales intercalated between the infralabials and the series of postmentals is invariably separated from the mental by a partial contact of the first postmental and first infralabial.

Other details of scutellation and proportions are given in the accompanying table.

The coloration is much as described by Dugès (1877), and quite different from that of *d. dugesii,* when specimens of both forms are compared side by side. In dorsal coloration there is but little if any sexual dimorphism. A narrow black nuchal collar about five or six scales wide (maximum) is present; its anterior border either blends more or less insensibly into the ground color of the neck or is marked by a few small whitish spots; its posterior border is always distinct and delimited by a narrow white line one and one half to two scales wide, sometimes broken medially into a series of spots. Behind this on the back follows a double series of about seven, usually rounded, black spots of indefinite outline. On the sides of the body is a corresponding number of oblique black bars, one to one and one half scales wide, divergent posteriorly, each originating from or near one of the median black spots on the corresponding side. These bars and spots are not easily visible on specimens which have shed their scales, but on all others are easily discernible, although the black is variable in intensity. The tail is distinctly banded, the lighter olive bands narrower than the darker olive or brownish bands.

In males the lateral ventral abdominal areas are usually lavender, sometimes azure blue; these areas are bordered medially by a black band about four scales wide, extending from opposite the axilla to the groin. The medial abdominal area, ventral surfaces of limbs, chest and sometimes the throat and gular regions are cream. The throat region is occasionally pale blue. Oblique, narrow, dark-blue lines traverse the throat. These lines are always quite distinct, both in young and in old.

The ventral surfaces of the limbs and abdomen of females are usually uniformly cream-colored; in some very large specimens a faint indication of the markings of the male is evident. The gular region is marked as in the male, except that the ground color is always cream, not bluish.

Habits and habitat. S. d. intermedius was found most frequently on rock fences, occasionally on limestone ledges. They are not wary and sometimes could be caught by hand.

No females have eggs in the oviducts. Very young specimens were frequently collected in August. In the early part of June I collected *dugesii dugesii* on the western coast of Mexico, and at this time the females had no eggs or young in the oviducts. Very small individuals were numerous on rock fences. Although positive evidence is lacking, it is assumed from these data that both subspecies of *dugesii* are ovoviviparous, and that they must give birth to their young during May.

Remarks. As may be discerned by comparison of the above description of *intermedius* with that of *dugesii*, there is ample justification for the recognition of both forms. They differ obviously in the average number of dorsals from occiput to base of tail; the median lateral scales are proportionately larger than the median dorsals in *dugesii*; the head scales are definitely rugose (microscopically) in *dugesii*, smooth in *intermedius*; the frontoparietals rarely contact medially in *dugesii*, but usually do so in *intermedius*; the maximum size is greater in *dugesii* (87.5 mm., snout to vent) than in *intermedius* (79 mm.). The oblique dorsal abdominal bars are absent in *dugesii*; the gular region is rarely rayed in *dugesii* as in *intermedius*, and never distinctly so.

Cope (1900) remarks that *dugesii* (*d. intermedius*) is most closely related to *ornatus*. The additional material of the latter species in

Measurements and Scale Counts of *Sceloporus dugesii intermedius* (Dugès)

Number	3959	3952	3942	3690	2695	3956	3684	3964	3953	3663	3651	3940	3968	3687	3662
Snout to vent	63.0	63.0	64.0	64.0	65.0	65.0	65.5	66.3	66.5	66.5	68.5	73.0	73.9	74.0	78.0
Tail	83.0	85.0	77.0	83.5	89.0	91.5	......	86.0	86.0	84.0	......	98.0	......	......	......
Snout to occiput	11.0	11.4	11.2	11.5	12.0	11.8	12.5	11.5	12.0	11.0	13.5	13.0	13.0	12.8	14.0
Snout to ear	14.0	14.0	14.5	15.0	15.5	14.5	16.0	14.0	14.5	14.0	16.3	16.5	16.0	16.0	17.8
Hind leg	38.5	37.0	37.0	38.2	38.0	37.0	40.0	......	39.5	36.4	41.0	40.5	43.0	40.5	47.0
Tibia	10.5	11.5	11.0	12.0	12.0	10.5	12.0	......	11.0	10.8	11.5	12.0	12.5	12.0	13.0
Fourth toe	13.5	12.5	13.7	14.2	14.0	13.0	14.0	14.2	14.0	13.0	14.7	15.0	15.0	15.0	16.5
Fifth toe	7.0	7.0	7.0	7.3	8.0	6.8	8.0	7.0	7.1	6.9	8.0	8.6	8.6	8.0	8.5
Lamellae, fourth toe	17–17	18–18	17–18	17–17	17–18	16–18	18–18	18–18	19–18	17–17	17–17	17–19	17–17	17–17	20–20
Femoral pores	10–11	12–13	12–12	14–14	14–15	11–11	13–14	11–12	13–13	10–11	14–15	12–13	13–13	12–13	14–14
Dorsals	50	52	49	53	50	49	51	47	48	53	54	53	50	54	51
Ventrals	60	60	54	66	63	57	58	64	61	60	73	66	63	64	62
Scales around body	53	56	54	56	55	51	53	54	50	54	59	55	54	52	53
Scales to head length	9.0	9.0	8.0	9.0	9.0	8.3	9.5	7.5	8.0	8.0	10.0	9.5	9.0	8.8	8.5
Ratio, hind leg to snout-vent	61.1	58.7	57.8	59.6	58.4	56.9	61.0	......	59.3	54.7	59.8	55.4	58.1	54.7	59.4
Ratio, fourth toe to snout-vent	21.1	19.8	21.4	22.1	21.5	20.0	21.3	21.4	21.0	19.5	21.4	20.5	20.2	20.2	20.8
Sex	♀	♀	♀	♂	♂	♀	♂	♀	♀	♀	♂	♂	♂	♂	♂

these collections makes still more evident this relationship. There are but few points of difference in scutellation. The supraoculars in *intermedius* are larger, and the posterior section of the frontal is less reduced and never entirely suppressed as in *ornatus*. Limb proportions are quite different in the two species, *ornatus* possessing considerably longer limbs; the fourth toe is also longer. Differences in coloration are apparent, *ornatus* lacking the convergent lines on the throat and the diagonal lines on the sides of the body.

Range. Known only from Guanajuato and northern and central Michoacán. (See fig. 22 for distributional map.)

Locality records. Guanajuato: (USNM 9904-5, 9886, 9893, A. Dugès; Dugès, 1870; Cope, 1879, 1885, 1887); near Acámbaro (EHT & HMS 3651, 3652, 3683-3697, 3940-3948, 3950-3966, 3968-3972, 4041). *Michoacán:* (Boulenger, 1898); Zamora (USNM 47791-2, Nelson & Goldman); La Noria (Dugès, 1877, 1896; Boulenger, 1897); Arroyo Zarco (Dugès, 1896); near Zinapécuaro (EHT & HMS 3662-3666); Pátzcuaro (FMNH 1005 [5 spec.], C. E. Meek; USNM 20145-58, P. L. Jouy; USNM 47219-21, 47223, E. W. Nelson). *Jalisco:* Ocotlán (FMNH 999 [4 spec.], S. E. Meek).

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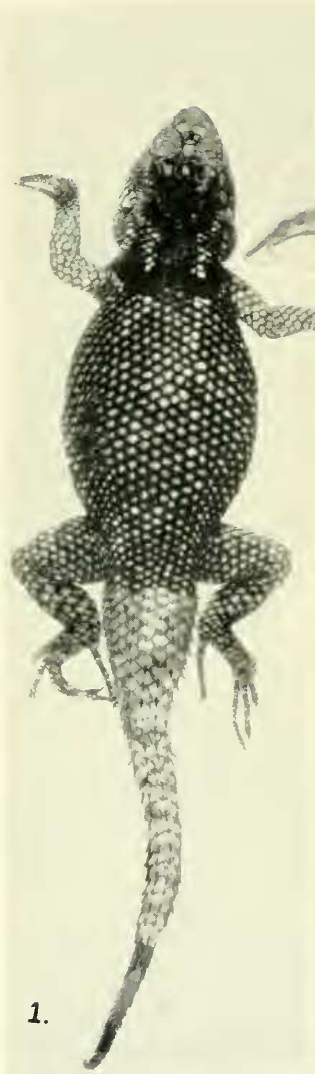
PLATE XLVII

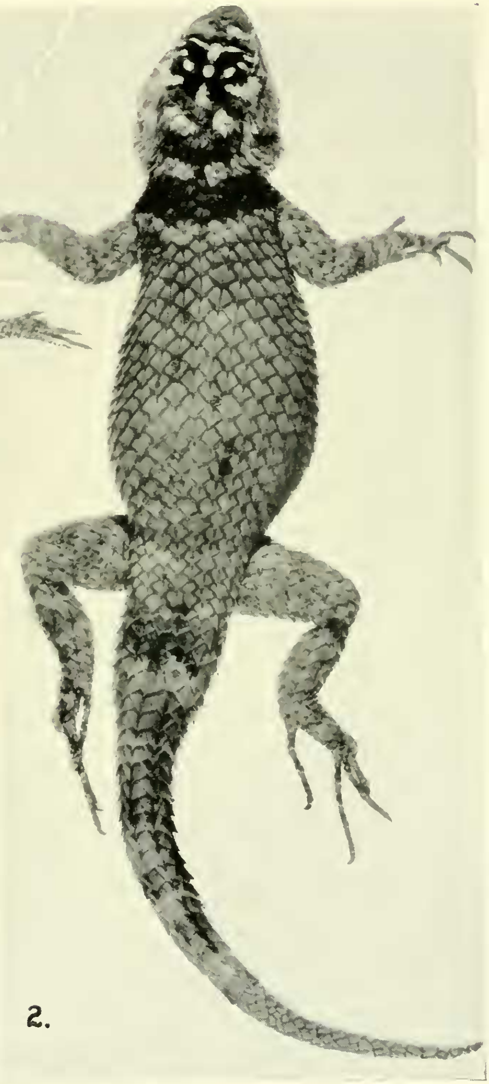
Fig. 1. *Sceloporus jarrovii jarrovii* Cope. KU 13151, male. Santa Cruz county, Arizona. Snout-to-vent measurement, 80 mm.

Fig. 2. *Sceloporus serrifer* Cope. UMMZ 72890, male. Near Mérida, Yucatán. Snout-to-vent measurement, 101 mm.

PLATE XLVII



1.



2.

PLATE XLVIII

FIG. 1. *Sceloporus torquatus torquatus* Wiegmann. EHT & HMS 3785, male. Near Uruapan, Michoacán. Snout-to-vent measurement, 101 mm.

FIG. 2. *Sceloporus torquatus melanogaster* (Cope). DHD & HMS 691, female. La Colorada, Zacatecas. Snout-to-vent measurement, 119 mm.

PLATE XLVIII

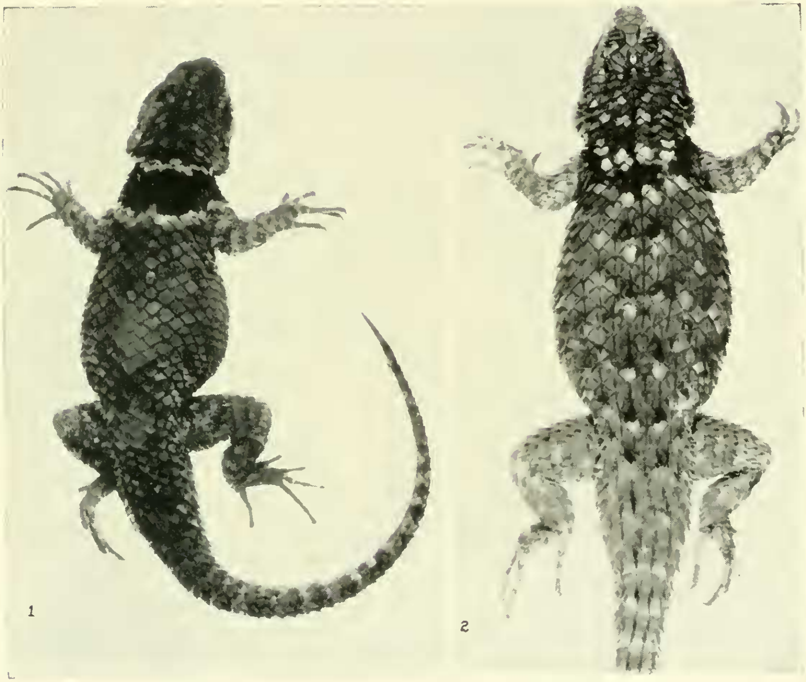


PLATE XLIX

FIG. 1. *Sceloporus bulleri* Boulenger. USNM 64664, female. La Laguna, Jalisco. Snout-to-vent measurement, 83.5 mm.

FIG. 2. *Sceloporus mucronatus mucronatus* (Cope). EHT & HMS 2096, female. Near Toxtlacuaya, about 18 miles west of Jalapa, Vera Cruz. Snout-to-vent measurement, 95 mm.

PLATE XLIX

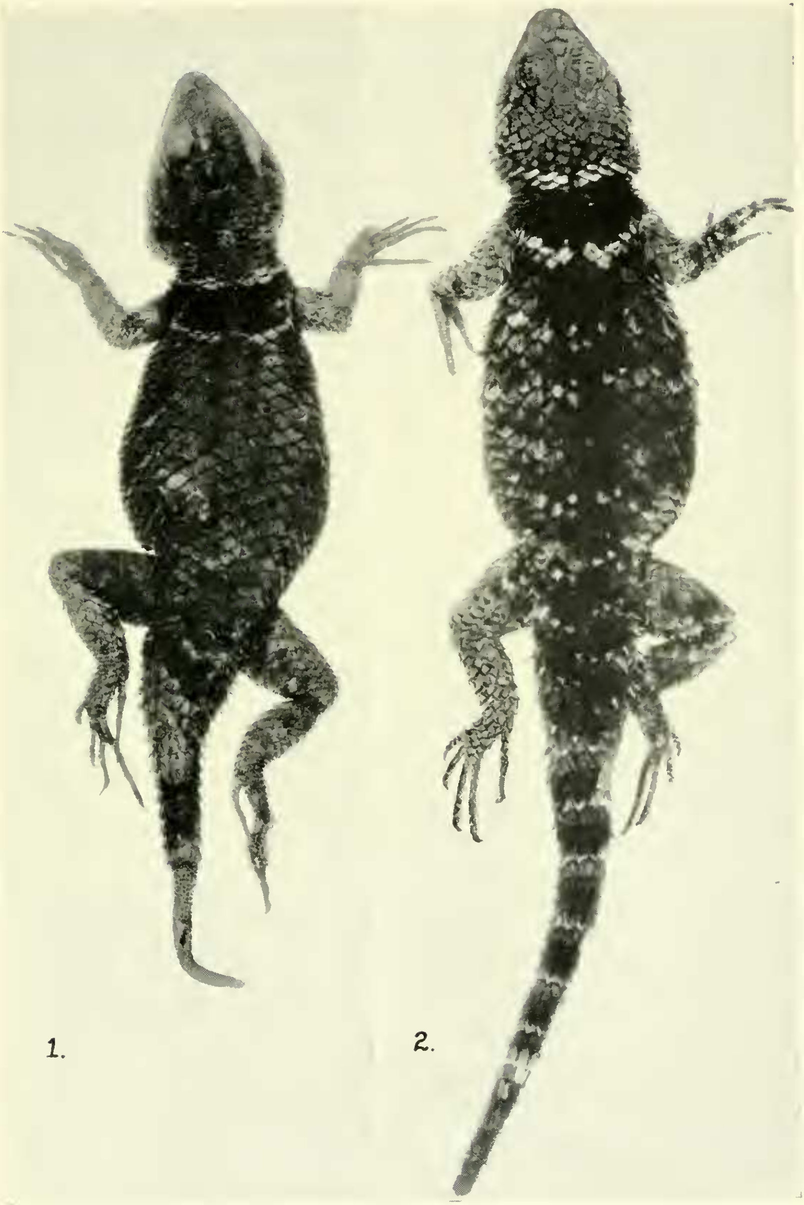


PLATE L

FIG. 1. *Sceloporus mucronatus omiltemanus* (Günther). EHT & HMS 3094, male. Two miles west of Acultzingo, Vera Cruz. Snout-to-vent measurement, 86.5 mm.

FIG. 2. *Sceloporus mucronatus omiltemanus* (Günther). MCZ 33904, male. Chilpancingo, Guerrero. Snout-to-vent measurement, 95 mm.

PLATE L

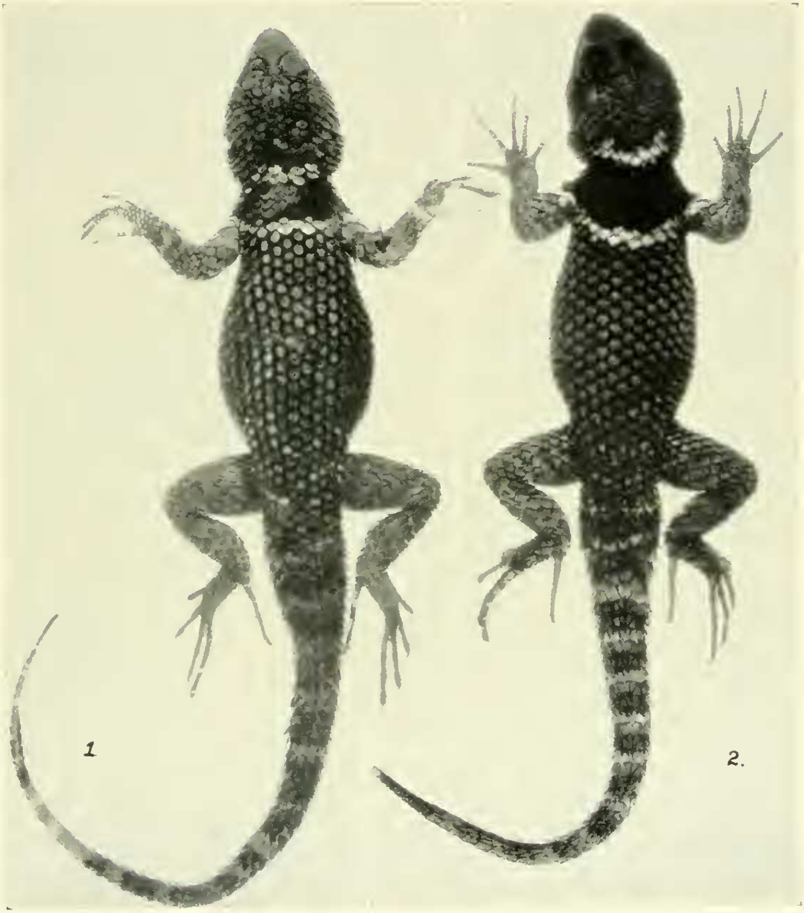


PLATE LI

FIG. 1. *Sceloporus poinsettii* Baird and Girard. LMK 24283, female. Gatton's Park, Grant county, New Mexico. Snout-to-vent measurement, 91 mm.

FIG. 2. *Sceloporus cyanogenys* (Cope). EHT & HMS 5053, male. Arroyo Los Olmos, three miles southeast of Rio Grande City, Starr county, Texas. Snout-to-vent measurement, 132.5 mm.

PLATE LI

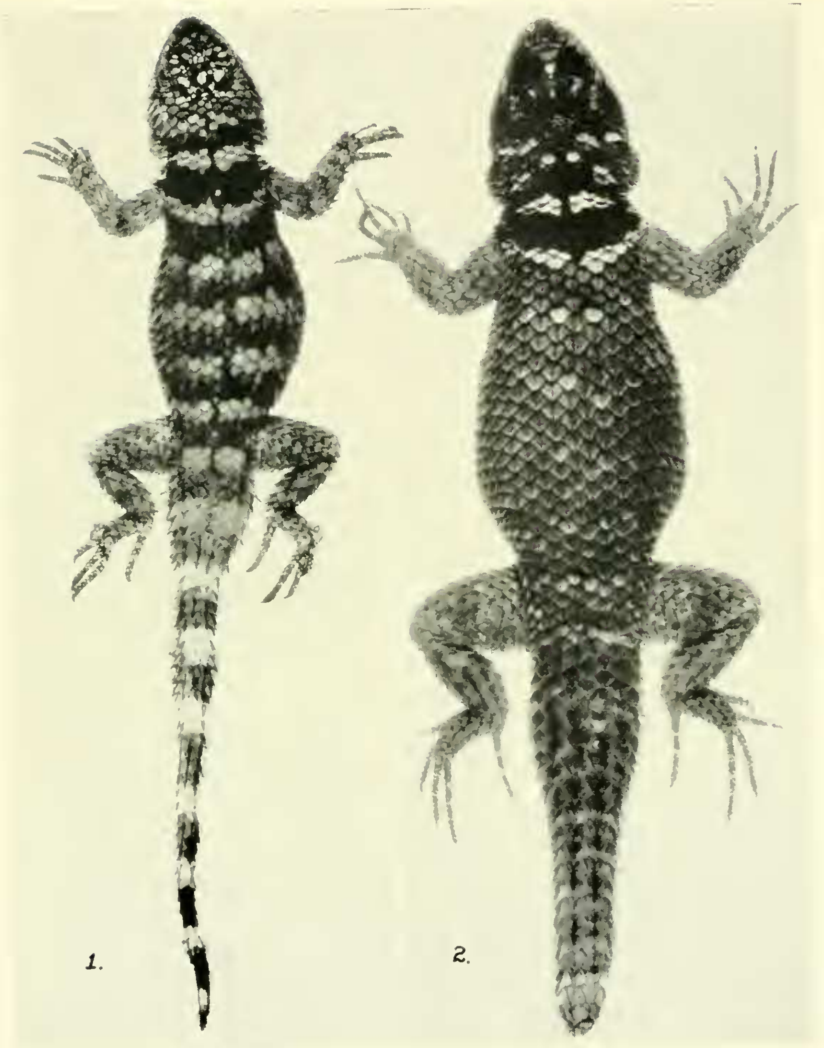


PLATE LII

Fig. 1. *Sceloporus lineolateralis* Smith. EHT & HMS 4332, male. Six miles northeast of Pedriceña, Durango. Snout-to-vent measurement, 71 mm.

Fig. 2. *Sceloporus lineolateralis* Smith. EHT & HMS 4363, female. Six miles northeast of Pedriceña, Durango. Snout-to-vent measurement, 73 mm.

PLATE LII

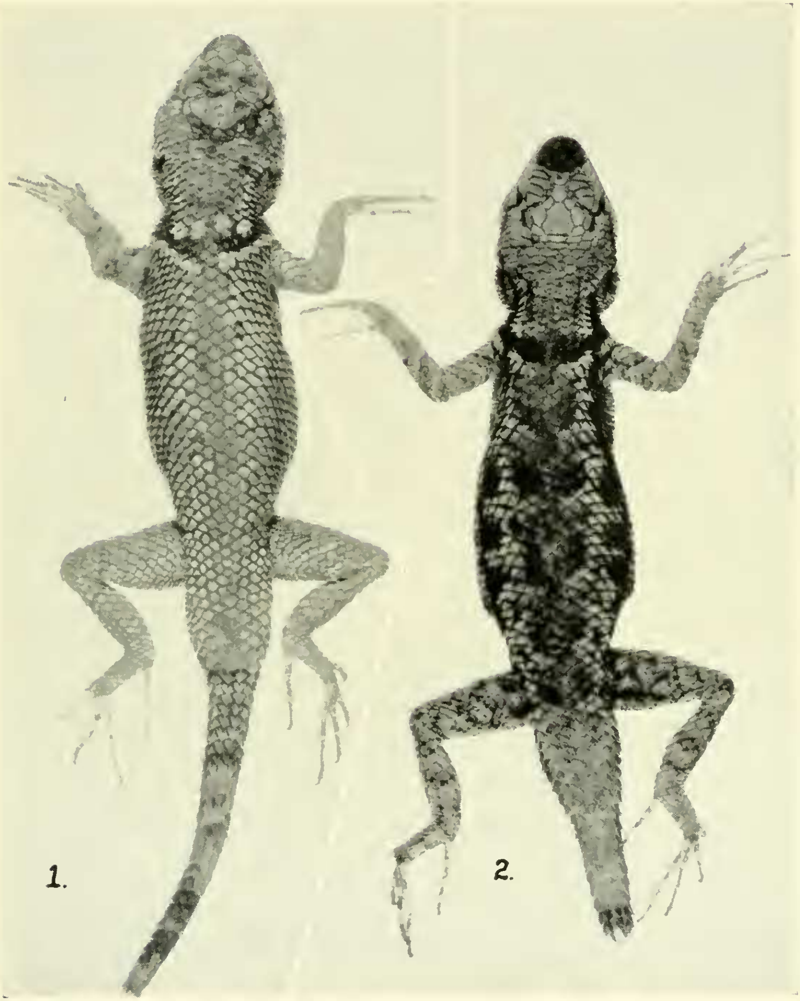
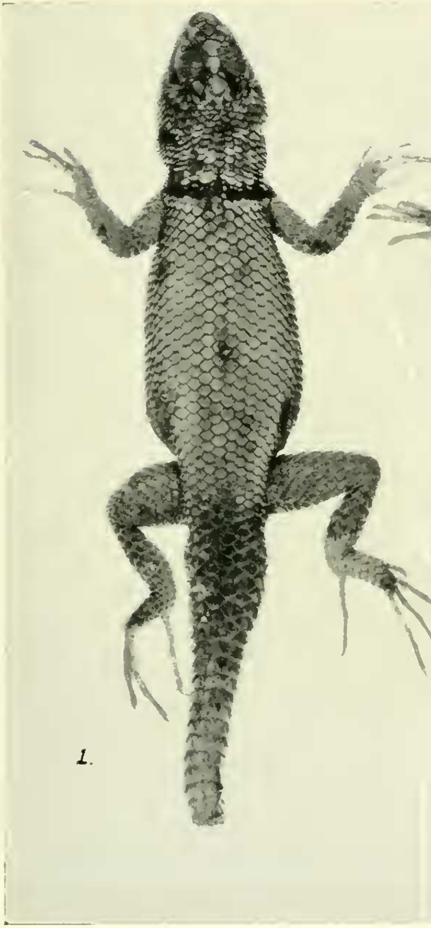


PLATE LIII

FIG. 1. *Sceloporus jarrovii immucronatus* Smith. EHT & HMS 500, male. Near El Pinalito, Hidalgo. Snout-to-vent measurement, 86 mm.

FIG. 2. *Sceloporus jarrovii minor* (Cope). EHT & HMS, 4207, male. Near San Felipe, Guanajuato. Snout-to-vent measurement, 97 mm.

PLATE LIII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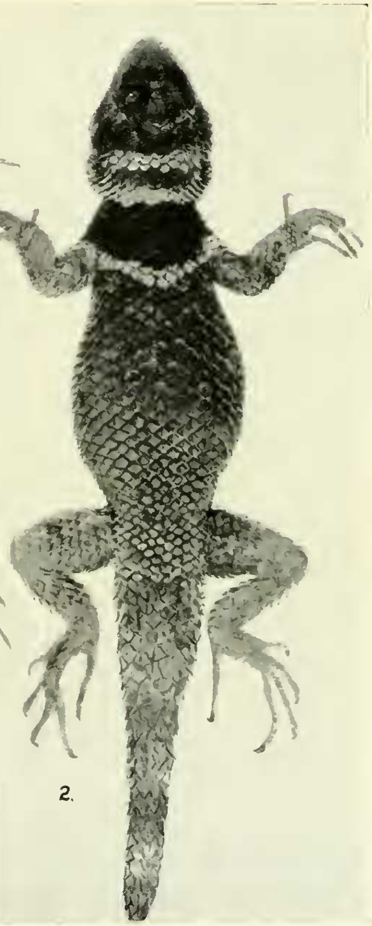
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PLATE LIV

FIG. 1. *Sceloporus ornatus ornatus* Baird. EHT & HMS 4420, male. Near Saltillo, Coahuila. Snout-to-vent measurement, 72.5 mm.

FIG. 2. *Sceloporus ornatus caeruleus* Smith. DHD & HMS 350, male. Five miles south of San Pedro, Coahuila. Snout-to-vent measurement, 75 mm.

PLATE LIV

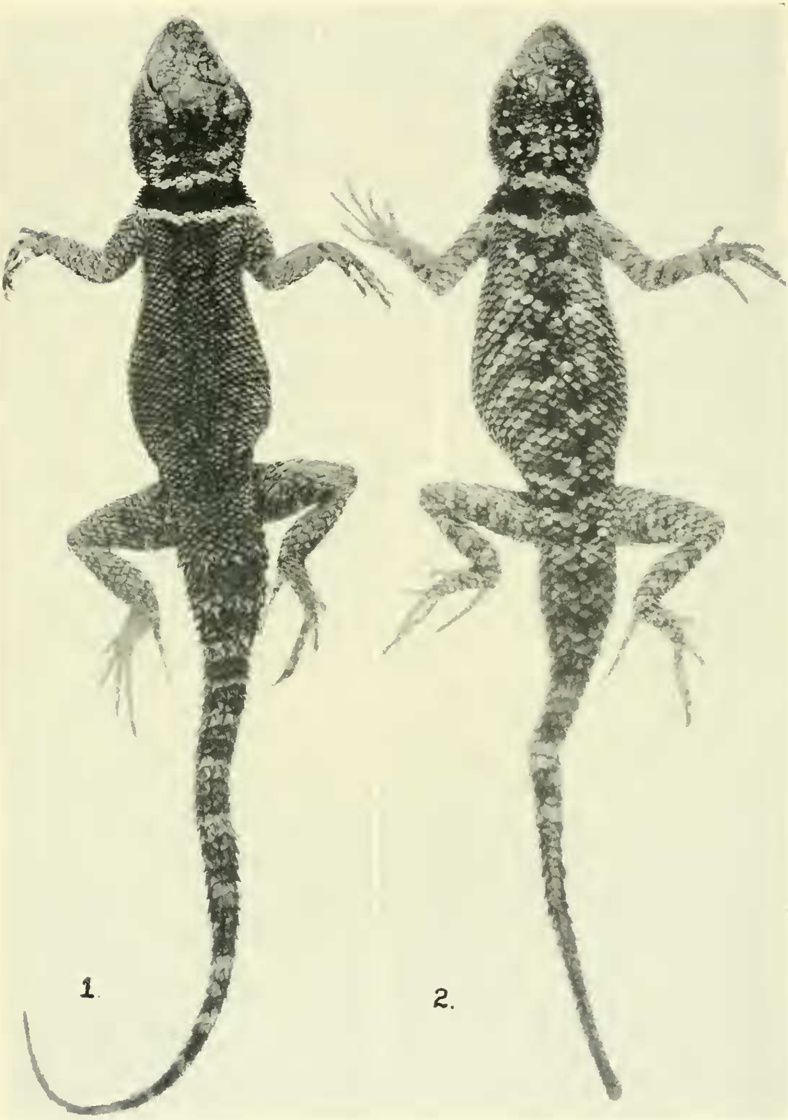
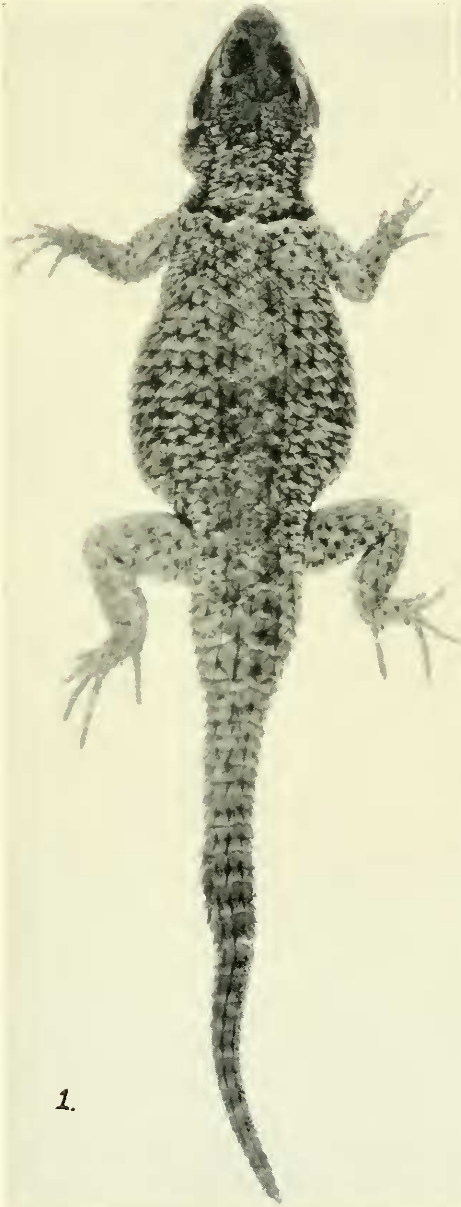


PLATE LV

FIG. 1. *Sceloporus dugesii dugesii* Bocourt. EHT & HMS 2770, female. Near Magdalena, Jalisco. Snout-to-vent measurement, 79 mm.

FIG. 2. *Sceloporus dugesii intermedius* (Dugès). EHT & HMS 3961, female. Near Acámbaro, Guanajuato. Snout-to-vent measurement, 68 mm

PLATE LV



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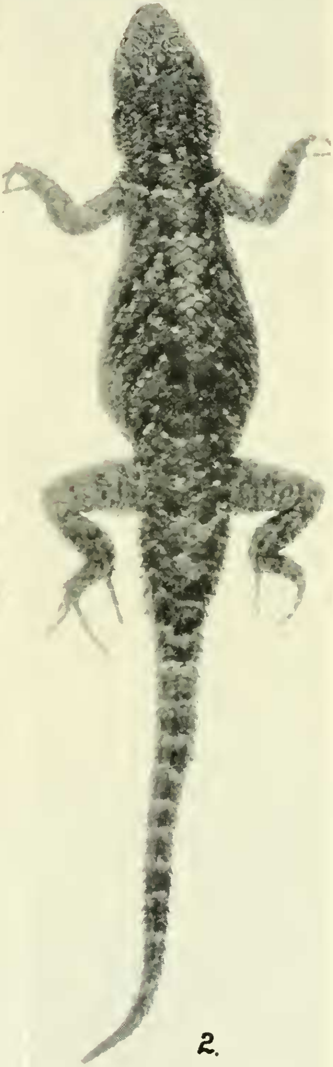

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